MIDWEST MARKETING ISSUE
Pages 9-16

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A WEEKLY NEWSPAPER FOR THE FARM CHEMICAL MANUFACTURER, FORMULATOR AND DEALER

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Pesticides in Good Supply For '58, USDA Says

Materials Regarded as Ample for Expected Need During Current Season

EDITOR'S NOTE: This is the final part of the "Pesticide Situation" report, first installment of which appeared on page 1 of Croplife's issue of May 19. Data contained in this report were compiled by Harold H. Shepard of the Commodity Stabilization Service, Food and Materials Requirements Div., U.S. Department of Agriculture, Washington, D.C.

Statistical tables appear on page 16 covering production of pesticidal chemicals; production of synthetic organic pesticides; manufacturers' stocks of pesticides on hand Sept. 30, 1957; exports of pesticides; and aerial application of pesticides and defoliants in the U.S.

For the last several years the value of Canadian sales of mosquito repellents of the type containing di-

(Turn to PESTICIDES, page 17)

Fertilizer Prices Up About 1% at Retail Level, USDA Reports

WASHINGTON — Retail fertilizer prices this spring are about 1% higher than those of last spring and prices of most major pesticides are about the same as they were a year ago, according to the Farm Cost Situation, released last week by the U.S. Department of Agriculture.

The publication again points up the fact that chemicals are the farmers' biggest bargain today.

Fertilizer, for example, since the 1935-39 period has risen in price only 48%, compared with boosts of up to 369% for other supplies and services which farmers must buy. The average increase in such products and services since 1935-39 is 150%.

Foul Weather in Mid-South Lessens Fertilizer Sales

MEMPHIS—Fertilizer sales in the Mid-South are running below those of last year. A check with a number of manufacturers and distributors indicates that sales are running as much as 30% below 1957 figures.

Hobson Vandiver, general manager of the Mid-South Supply Assn., which serves farmers in east Arkansas, north Mississippi and portions of west Tennessee reported fertilizer sales down about 30%. Mr. Vandiver lists the reasons as the spring's wet weather, a lack of purchasing power for

(Turn to WEATHER, page 21)

Two New Pesticide Plants Operating in West, Midwest

Arizona Fertilizers, Inc.

PHOENIX—Arizona Fertilizers, Inc. here has opened a new insecticide mixing plant in Willcox, Ariz. and plans in the near future to have a new addition to its Yuma plant in operation.

F. M. Feffer, Jr., vice president of the firm, said that the Willcox plant will mix dry and liquid insecticides with an hourly capacity of 6 tons for finished dry materials and 800 gallons for liquids. Eli (Nick) Borze is plant manager.

The Yuma addition, which will cost about $50,000, includes a new emulsion plant and warehouse. Currently the company has a dust and mixed fertilizer plant at that site. Capacity of the new emulsion unit will be 800 gallons an hour, Mr. Feffer said. Charles Lairmore is plant and office manager at Yuma.

In April Arizona Fertilizers opened a new Thimet seed treating plant at Toltec, Ariz.

Texas Gulf Sulphur Begins Production at New Texas Plant

HOUSTON — Texas Gulf Sulphur Co. has begun production of sulphur at its new Fannett Dome plant in Jefferson County, Texas, Fred M. Nelson, chairman of the firm, has announced.

Designed to produce at approximately one-half million tons per year the new Frasch Process facility was completed in 14 months by Brown & Root, Inc. of Houston. Field installations were made by R. O. Busby Engineering Construction Co. of Beaumont.

General Chemical Division

MINNEAPOLIS — The General Chemical Division of Allied Chemical Corp. has completed manufacturing facilities here for production of DDT, heptachlor, aldrin, dieldrin, endrin, toxaphene and other emulsifiable insecticide formulations.

The new plant, a high capacity unit, was installed to supply the division's customers in the Upper Midwest, and particularly to make available insecticidal formulations during infestations of pests such as armyworms, grasshoppers, and others doing economic damage in the area.

The plant, seventh General Chemical Div. installation for the purpose of producing insecticides and basic toxicants, utilizes new equipment specially designed by the firm's engineering department, the company says.

Market Potentials Seen In Protection of Stored Grains on Midwest Farms

By JOHN CIPPERLY
Croplife Washington Correspondent

WASHINGTON — Sales-minded people in the pesticide industry may find some encouraging data in two recent reports issued by the U.S. Department of Agriculture on farm storage facilities for small grains.

The first report, dated May 19, covers storage facilities in nine selected states, and sets the figure for small grains now stored on farms in these states at 2.5 billion bu. This total does not include storage capacity in certain crop reporting districts used by the USDA crop reporting service.

The second report, presenting USDA figures on grain storage, reveals a developing tight storage situation which will require further expansion of farm storage facilities, USDA says.

These reports should be regarded as road signs—directions to the sales-minded persons in the pesticidal chemical industries—to sales possibilities.

Primarily, these reports are an index of volume of sales potentials for protective pesticides which can maintain these small grains in clean condition against infestation by insects or contamination by rodents.

The Federal Food and Drug Administration previously moved to insure clean wheat from insect damage and rodent infestation when it imposed a tolerance level of evidence of such damage. Grains intended for human consumption, contaminated above this level will be subject to seizure when moving in interstate commerce.

The current USDA emphasis on

(Turn to STORED GRAIN, page 20)

Native Sulfur Output Reduced During First Three Months of 1958

WASHINGTON—Output of native sulfur for the first quarter of 1958 dropped, but production of recovered sulfur increased in the same period, according to figures released by the Bureau of Mines, U.S. Department of the Interior.

Comparative figures on native sulfur output for the first three months of 1958 vs. 1957 were 1,305,946 tons and 1,406,898 tons, respectively. Recovered sulfur, however, for the first quarter of 1958 was 153,951 tons against 120,954 tons in the same three-month period last year.

Native sulfur output for March this year came to 429,475 tons, and recovered sulfur, 51,104 tons.

Native and recovered sulfur shipments during the three-month period of 1958 came to 1,084,818 and 148,417, respectively, as compared with the same period of the previous year of 1,186,319 tons for native, and 126,119 tons for recovered.

Producers' stocks at the end of March reached 4,620,947 tons for native sulfur and 163,462 tons for recovered, differing from the total at the end of February of 4,620,606 tons and 163,793 tons, respectively for native and recovered sulfur.

Stocks on hand at the end of March, 1957, amounted to 4,102,394 and 111,905 tons, respectively, for native and recovered sulfur.

Greater Fertilizer Use Urged to Expand, Safeguard Southeast Livestock Industry

WASHINGTON — Bad weather in most of the southeastern states in recent months has seriously depleted stocks of feed, and if farmers are to expand and safeguard the growing southeastern livestock industry, they will have to increase their use of fertilizer on grasslands in a very substantial manner, Dr. Russell Coleman, executive vice preesident of the National Plant Food Institute, said last week.

"Farmers should not be misled with the promising outlook for pastures and hay crops at this time," he said. "They can be deceived. Stocks of hay on most farms in the Southeast have been drastically depleted. Unless reserves are maintained, the southeastern livestock industry will be jeopardized. Another drouth could seriously hurt it."

Dr. Coleman emphasized that "one way out of the current feed shortage dilemma lies in the use of fertilizer on grasslands, in keeping with the recommendations of the southeastern state experiment stations and land-grant colleges."

He pointed out that "too few

(Turn to FERTILIZERS, page 21)

Inside You'll Find

Patents and Trademarks	6
Better Selling	9
What's New	10
What's Been Happening	18
Oscar and Pat	19
Editorals	22
Meeting Memos	23
Advertisers Index	23

Japanese Beetle Regulated Area Increased in 4 States

Effective May 20, nominal additions were made to the areas regulated under the federal Japanese beetle quarantine in North Carolina, Ohio, Virginia and West Virginia, the U.S. Department of Agriculture has announced.

Additions to the regulated area in Ohio comprise, for the first time, Morgan County and part of Lorain County; inclusion of the remaining nonregulated area in the counties of Monroe, Muskingum, Noble and Washington, so that the entire counties are now regulated; together with additional townships, cities and villages in the partially regulated counties of Athens, Coshocton, Franklin, Gallia, Licking, Lucas and Meigs.

North Carolina counties now coming under regulation are Alamance, Caldwell, Caswell, Durham, Franklin, Granville, Orange, Rockingham, Wake, Warren, Watauga and Vance.

Newly added in Virginia are Franklin and Montgomery counties, and the cities of Colonial Heights, Falls Church and Virginia Beach, plus all remaining non-regulated area in the counties of Albermarle, Botetourt, Campbell and Pittsylvania.

West Virginia localities initially included comprise the counties of Calhoun, Clay, Gilmer, Grant, Hardy and McDowell, along with portions of Cabell, Fayette, Logan, Mason, Mingo, Raleigh, Wayne and Wyoming. Additions were made to existing regulated area in Greenbrier, Mercer, Monroe and Summers counties.

These are the first additions to the Japanese beetle regulated area since Oct. 6, 1953. Plants, fresh fruits and vegetables, and soil shipped from the regulated areas are subject to certification, inspection and treatment requirements to prevent the spread of Japanese beetles.

Gormel Co. Appoints Executive Vice President

ROCHESTER, N.Y.—Charles I. Diehl, a member of the Gormel Co. for 13 years, has been appointed executive vice president. New operations manager is Richard Houghton, a graduate of Alfred University with a degree in horticulture.

Another promotion among the company's personnel is that of Mrs. Irving Diehl to laboratory technician in charge of the chemical department. Peter Firito advances to superintendent in charge of fertilizer manufacturing and lawn seed blending. James Morris, who recently joined Gormel, is now foreman in charge of service.

RETIRES AFTER 40 YEARS

ITHACA, N.Y.—Prof. Roy G. Wiggans who pioneered in the breeding and development of hybrid corn for New York State, will retire from the Cornell University faculty June 30 after 40 years of service.

Dr. W. P. Boyer

V-C Names New Head Of Its Chemical Division

RICHMOND, VA.—Dr. William P. Boyer, director of research and development of Virginia-Carolina Chemical Corp., has been named head of the company's chemical division, according to William H. Wilson, president.

In his new position, Dr. Boyer will be responsible for the sales, marketing and production activities of the V-C chemicals division. He will continue to direct the company's research and development programs.

A native of Orange, Va., Dr. Boyer first became associated with V-C in 1947 in chemicals research. He was named assistant research director in 1949 and became director in 1951. He was placed in charge of both research and development in 1956. The new appointee received his B.S. degree in chemistry from Virginia Military Institute in 1938 and completed his doctorate at the University of Virginia in 1948.

He served as major in an army tank battalion during World War II and was released from active duty in 1946. He then returned to V.M.I. as professor of chemistry and was a consultant to V-C on organic phosphorus compounds prior to joining the company.

Dr. Boyer succeeds Russell L. Haden, Jr., vice president and general manager, who has resigned to rejoin Dewey & Almy Chemical Co. in Cambridge, Mass. The latter was general manager of the organic chemicals division of Dewey & Almy prior to joining V-C in December, 1957.

Great Lakes Carbon New Huntley Sales Agent

LOS ANGELES—The mining and mineral products division of Great Lakes Carbon Corp. has become the sales agent in the U.S. and Canada for clay, talc, pyrophyllite and other products of Huntley Industrial Minerals, Inc. as of May 1, 1958.

Announcement of the new sales agreement was made jointly by Wright H. Huntley, president of the Huntley firm, and DeOtis L. Marlett, vice president of Great Lakes Carbon, and general manager of its mining and mineral products division headquartered in Los Angeles.

Huntley Industrial Minerals, Inc., whose operations center around Bishop, Cal., owns and operates several deposits of high-grade, non-metallic minerals, principally kaolin clay, talc and pyrophyllite. Mining and development work on other non-metallic minerals is also under way.

The company was formed in 1941. Its products are now being used in the ceramics, insecticide, paper, paint, rubber and glass industries. Tests indicate substantial potentials in other large areas, such as agriculture, the firm reports.

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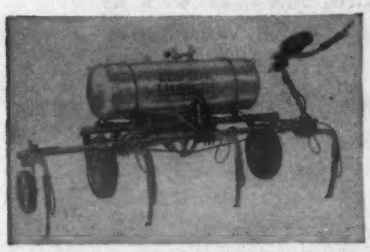

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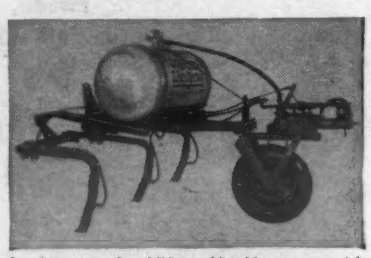

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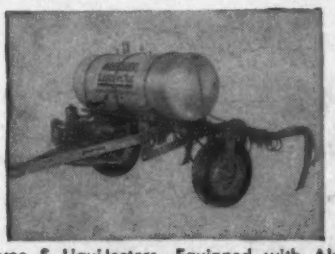

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INSECT AND PLANT DISEASE NOTES

Oriental Fruit Moth Found in Oregon Orchard

SALEM, ORE.—The first Oriental fruit moth noted in Oregon this year was found in a neglected peach orchard in West Salem early this month, the state department of agriculture reports.

All peach trees in the vicinity are being watched closely for any spread of this insect pest.

Last year Oriental fruit moth was found in 10 places around Salem and in five plantings along Columbia boulevard in Portland.

To date, no infestations have been found in orchards that have been sprayed this year, according to F. P. Larson, head of the department's plant pest and disease survey program.

Illinois Reports Corn Borers Active

URBANA, ILL.—The most heavily spittlebug-infested hay crop fields in the state are north of Highway 6. Here the infestation increases to the north and decreases somewhat to the extreme east. Although maximum control can no longer be obtained with insecticides, infestations may still be partially controlled.

Pea aphid populations are increasing in many alfalfa fields. Need for treatment is difficult to determine, since an aphid disease, lady beetles, other predators and wasp parasites of aphids are present and may increase rapidly, holding the aphids in check.

Lesser cloverleaf weevil is more prevalent this year than in the past, and broken stems will soon became quite noticeable. There is no known control method.

Pupation of overwintering corn borers has started in the southern half of the state and should begin in the northern half during the next week to 10 days. Development is about 10 days to 2 weeks later than last year and about a week later than in 1956. With this later development and most of the corn already planted in the borer-infested areas, survival of first generation should be high, but the population will likely be diluted over a large acreage. Corn borer populations may increase noticeably this year, particularly if second generation is also high.—H. B. Petty.

Tomato Blight Noted in South Georgia Counties

ATHENS, GA.—Early blight of tomatoes has already been reported in Colquitt, Mitchell and Tattnall counties and is probably present in other south Georgia counties too. Infestations of Colorado potato beetle have been reported in recent insect survey letters. It is, therefore, advisable for growers in these areas to check their fields carefully for blight and if found, to start including a fungicide in the regular spray even though fruits may not be half grown.—C. R. Jordan and Cecil Blackwell.

Apple Scab Insects in Massachusetts Report

AMHERST, MASS.—Apples are in full bloom in most orchards with much new growth having no protection against scab. During the week a heavy load of scab spores has built up in the old leaves on the ground. Spray will be needed for the next rain to protect the leaves which opened since the last spray. Leaf scab was found in substantial amounts on all leaves of flower clusters in an unsprayed orchard.

During the blossom period is a good time for apple growers to enjoy the blossoms while looking for mites, rosy aphids, bud moth damage, and leafroller egg masses.

In Hampden County, over 100 cabbage maggot eggs were found recently around the stem of one plant. Very heavy egg laying by cabbage maggot has been reported during the past few days at Waltham. Flats or boxes of cabbage and broccoli plants also have many eggs and should be treated before being sold or planted.

Cutworms are abundant in many asparagus and strawberry beds. They may well be a real problem in other crops unless treatments are made before planting.—E. H. Wheeler and C. J. Gilgut.

Flea Beetles, Grasshoppers Threaten in Kansas

MANHATTAN, KANSAS—Flea beetles feeding on corn plants were observed throughout eastern Kansas counties last week. The feeding of flea beetles causes the bronzing of leaves. Feeding on emerging-corn may destroy the plants if they are not sprayed.

Small grasshoppers have been reported from most all of the state last week. The big hatch should be completed within the next two weeks. Any area that had grasshopper damage last year should check fence rows and waste land areas for the small grasshoppers. Early control of grasshoppers requires less insecticide and is much more effective that the sprays applied a month from now.

Elms and hackberries in north central and northeast Kansas have more cankerworm feeding than any spring since the outbreak in 1948-1950. Some trees may be defoliated within the next few days.—David L. Matthew and Dell E. Gates.

Plenty of Weevils This Year in Alabama

AUBURN, ALA.—Entomologists believe there will be plenty of boll weevils in Alabama this year. In a report made to county and assistant agents over the state, Walter Grimes, Alabama Polytechnic Institute extension survey entomologist, said that an overwintering boll weevil survey was conducted during the early part of the year. One of his statements concerning the observation is that boll weevils will be plentiful again this year, particularly in central and south Alabama. Mr. Grimes expects north Alabama's weevil infestations to be below those of 1957, however.

Grasshoppers Expected In Colorado Fields

FT. COLLINS, COLO.—Grasshoppers have started to hatch on crop and range lands in southeastern Colorado. Although the insects are not present in economic numbers, the Colorado Insect Detection Committee has advised farmers and cattlemen to be on the alert for signs of hopper damage.

Grasshoppers in the nymph stage average five per square foot on range and crop lands in Cheyenne, Kit Carson, Kiowa, Prowers, Baca, Bent, Otero, Crowley and Pueblo counties.

Unseasonable weather killed large numbers of grasshopper nymphs in Fremont, Custer and Douglas counties, according to an earlier report by the committee. This mortality, however, will have little effect on the expected infestations this summer.

Field surveys also show increasing numbers of the pea aphid in both eastern and western counties of the state. Ladybird beetles are building up where pea aphid populations are high in Mesa County.

No signs of the spotted alfalfa aphid have been found in Colorado this spring.

Tobacco Diseases Found In Virginia Fields

RICHMOND, VA.—Blue mold of tobacco has appeared in Virginia, S.

(Turn to INSECT NOTES, page 8)

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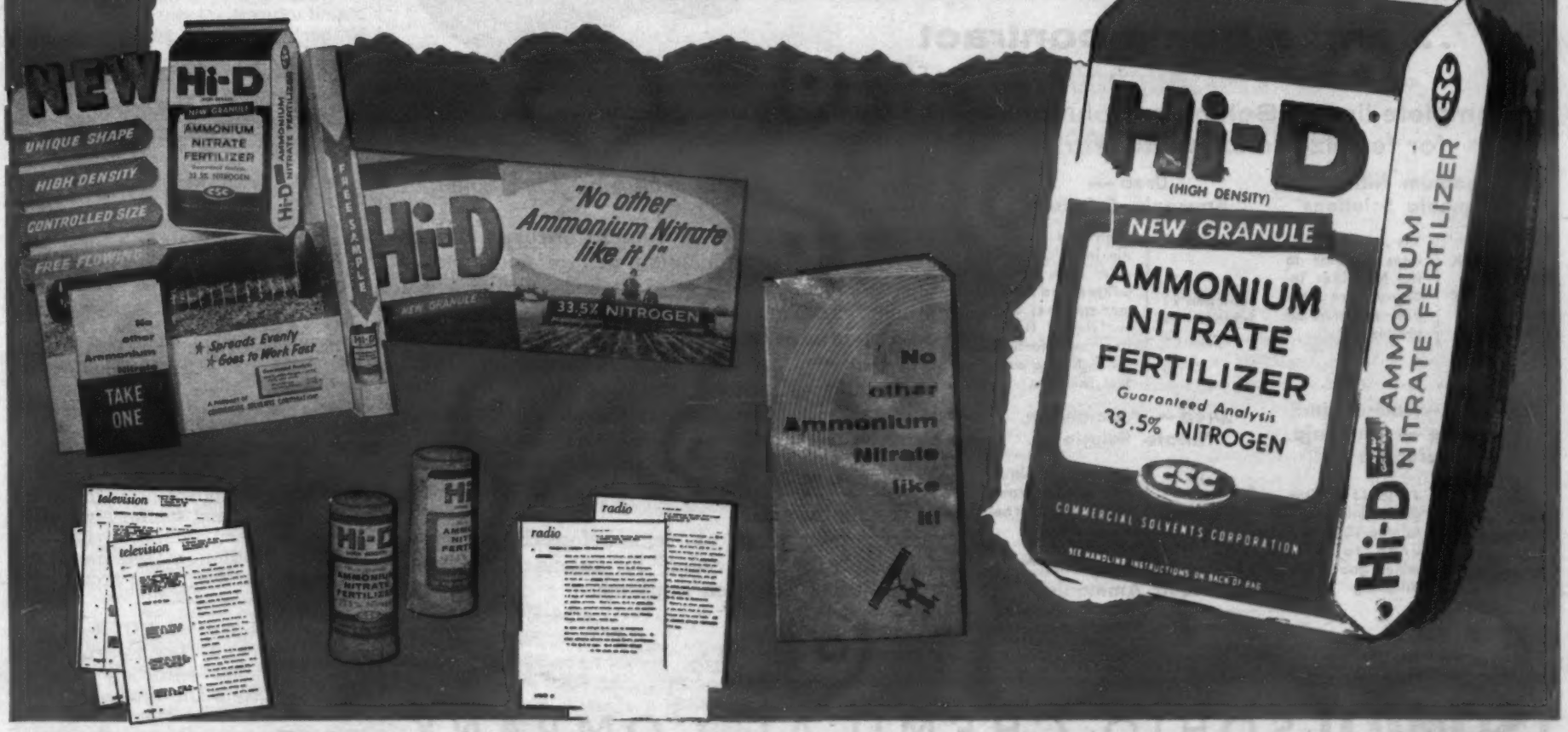

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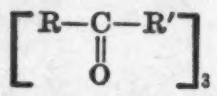
Industry Patents and Trademarks

2,834,707

Insecticidal Compositions and Method of Using Same. Patent issued May 13, 1958, to Fred Smith, Wayzata, and Laurence K. Cutkomp, St. Paul, Minn., and Abdel Aziz Fathy, Giza, Egypt, assignors to regents of the University of Minnesota. An insecticidal composition of matter comprising a polymer of a compound having the following formula:



in which R and R' are, respectively, an alkyl group and a perfluoro alkyl group, each containing from 1 to 20 carbon atoms, and a carrier therefor.

2,834,706

Method of Killing Marine Borers. Patent issued May 13, 1958, to Clarence Oscar Fulton, Vernon, British Columbia, and Paul Chandos Trussell, Vancouver, B.C., Canada. The method of killing adult forms of teredine marine borers that exist during their entire adult stage in burrows in wood in sea water and have siphons normally projecting from the wood into the sea water by means of which they detect normally-accepted poisons, comprising the application to the sea water surrounding the infested wood of a solution of a water-soluble alkali arsenite selected from the group comprising sodium, potassium and ammonium arsenites, the arsenite being dissolved in water so that the water-soluble arsenite is sucked into the body of the borer, the solution ranging in concentration from 0.000625% to 2% arsenite (calculated as arsenic trioxide) by weight of water, whereby said borers, being unable to detect the solution over these concentrations, are killed as they draw the sea water containing the solution in through their siphons.

2,834,817

Purification of the Gamma Isomer of Benzene Hexachloride. Patent issued May 13, 1958, to Ernest Marcel Degeorges and Jean Lehureau, Lyon, France, assignors to Progil, Paris, France, a corporation of France. A process for the removal of both odor-imparting impurities and chlorinated benzene impurities from a benzene-hexachloride gamma isomer concentrate which comprises mixing the concentrate with nitric acid of a density of at least about 1.48 in a quantity which will react with the odor-imparting impurities and also dissolve substantially all of the gamma isomer content during the subsequent heating operation, heating the resulting mass to a temperature at which the nitric acid reacts with the odor-imparting impurities, and at which the gamma isomer and unavoidably also some of the chlorinated benzene impurities are dissolved, rapidly cooling the resulting solution to a temperature at which substantially only the gamma isomer crystallizes out, and separating such crystals from the acid solution still containing the dissolved impurities.

Industry Trade Marks

The following trade marks were published in the Official Gazette of the U.S. Patent Office in compliance with section 12 (a) of the Trademark Act of 1946. Notice of opposition under section 13 may be filed within 30 days of publication in the Gazette. (See Rules 20.1 to 20.5.) As provided by Section 31 of the act, a fee of $25 must accompany each notice of opposition.

Ortho-Klor, in capital letters, for insecticides, pesticides, and parasiticides. Filed Oct. 21, 1957, by California Spray-Chemical Corp., Richmond, Cal. First use Nov. 8, 1948.

Green Genie, in capital letters, for liquid fertilizers and solid fertilizers. Filed May 15, 1957, by John Wilson Gouge, Vancouver, B.C., Canada. Priority claimed under Sec. 44(d) on Canadian application filed Dec. 13, 1956; Reg. No. 107,803, dated Aug. 23, 1957.

Pro Gro, in capital letters, for fertilizer. Filed Oct. 2, 1957, by O. M. Scott & Sons Co., Marysville, Ohio. First use Sept. 28, 1957.

Herba-Lizer, for liquid fertilizer. Filed Dec. 2, 1957, by West Kentucky Liquid Fertilizer Co., Hopkinsville, Ky. First use Oct. 28, 1957.

Blue Bird, in capital letters, for soil conditioner. Filed Dec. 3, 1957, by Bonnie Brands, Inc., New York. First use Nov. 19, 1957.

Humull, in capital letters, for powdered peat for use as a fertilizer. Filed Dec. 10, 1957, by The Eclipse Peat Co., Ltd., Glastonbury, England. Owner of British Reg. No. 487,498, dated Jan. 12, 1928.

Mallard Brand, in capital letters, with silhouette of duck in flight, for chemical fertilizers. Filed Jan. 2, 1958, by The Consolidated Mining & Smelting Co. of Canada, Ltd., Montreal, Quebec, Canada. First use, Oct. 5, 1957; in commerce Oct. 5, 1957.

Pro-D-Co, in outlined capital letters, for liquid fertilizers. Filed Jan. 24, 1958, by Product Development Co., Inc., Omaha, Neb. First use Dec. 10, 1957.

CSMA Holds Annual Meeting in Cincinnati

CINCINNATI, OHIO—Discussions of insecticides were among the topics on the agenda for the 44th midyear meeting of the Chemical Specialties Manufacturers Assn. held at the Netherland Hilton Hotel here May 20-21.

Chairman of the insecticide division of CSMA was John A. Rodda, Fairfield Chemical Div., Food Machinery and Chemical Corp., New York.

Appearing on the program on Tuesday, May 20, were Karl Paul Link, University of Wisconsin, who talked on "Warfarin and its Sequels"; Mitchell R. Zavon, M.D., Kettering Laboratory, University of Cincinnati, "Confine Insecticide Hazards to Insects;" Channing E. Jones, Jr., California Spray-Chemical Corp., Richmond, Cal., "The Garden Supply Market;" and Joseph E. Lee, McLaughlin Gormley King Co., Minneapolis, Minn., reported on the household and industrial insecticide survey.

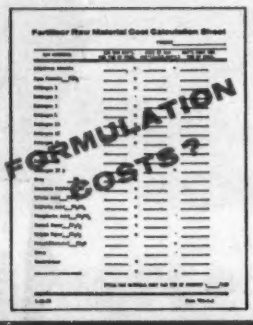
The CSMA, with headquarters in New York, comprises firms in the insecticide, soap and sanitary chemical, disinfectant and sanitizer industries. H. W. Hamilton is secretary and managing director of the group.

OKLAHOMA TOUR

STILLWATER, OKLA.—The twenty-sixth annual agronomy day at Oklahoma State University is scheduled for Tuesday, May 27, at the main agronomy research farm west of Stillwater. Tours of the farm will begin at 930 a.m., continue till noon, and resume at 2 p.m.

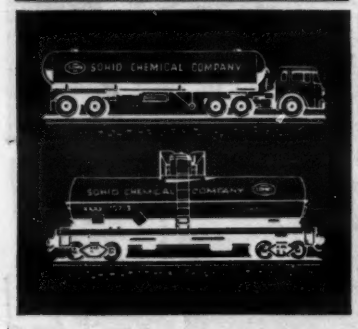
When you add up the answers . . .

GAUGE VAPOR PRESSURES?

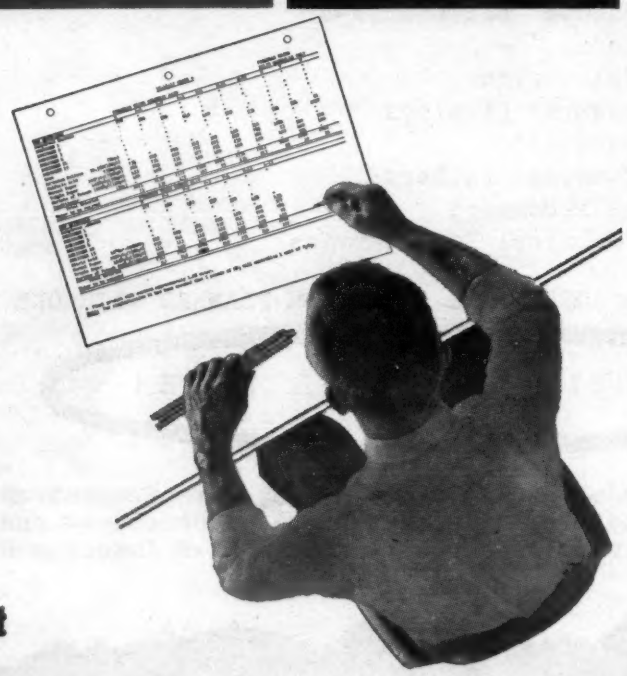


SALTING OUT TEMPERATURES?

FIXED TO FREE RATIOS?



CONDITION OF FINISHED GOODS?



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WHEN you plan ahead for the coming year, consider grade . . . condition . . . and formulation costs of your finished goods. Important factors like these automatically bring Sohiogen solutions into the picture.

Sohio offers a full selection of nitrogen materials — ammonia, ammonium nitrate and urea — blended to a wide range of chemical and physical properties. That's why Sohiogen solutions meet even your most exacting requirements. One example, Sohiogen Solution 16 for granular fertilizers. Its high fixed-to-free ratio and precise urea-nitrate balance make it ideal for formulating high-analysis granular grades at lower cost. You save by using more of the low cost nitrogen materials . . . less acid . . . and you have more room to use lower cost phosphates.

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North Carolina Makes Changes in Official Fertilizer Grade List

RALEIGH, N.C.—North Carolina's state board of agriculture has made three changes in the official list of fertilizer grades for 1958-59 and modified a restriction on the registration of specialty grades.

Revisions in the list of grades for general crops consisted of substituting 0-13-36 for 0-20-40 and deleting 13-13-13. One grade, 4-8-12, was added to the list of grades for tobacco.

A prohibition against registering as a specialty any grade which has appeared on the official list during the past five years was modified to apply only to fertilizer to be offered for sale in packages exceeding 25 lb. in weight. It was also further amended to apply to any such grades offered for sale as a "customer's mix."

L. Y. Ballentine, state agriculture commissioner, informed the board that the State Agriculture Department has received some complaints that manufacturers are advertising their fertilizers to contain minor elements without any guarantee as to the amounts of such elements in the fertilizer.

Mr. Ballentine explained that the North Carolina fertilizer law permits a manufacturer to guarantee minor plant food elements with the permission of the commissioner of agriculture by and with the advice of the director of the experiment station. But the law does not make such guarantees mandatory. It is possible, he said, for a manufacturer to claim a minor plant food without guaranteeing it, and satisfy the labeling provisions of the law by having only the slightest trace of the element in his product.

Objections were expressed by a number of fertilizer manufacturers to any change in the law to require guarantees of such minor elements on the grounds it would make it necessary for them to reveal trade secrets. Others expressed the opinion it would be a desirable provision and afford protection from unscrupulous competition. No formal action was taken on the matter.

Dr. J. W. Fitts, head of the soils department at North Carolina State College, said the experiment station would recognize molybdenum, zinc, manganese, iron and copper as minor elements which may be guaranteed.

The official fertilizer grade list for 1958-59 as adopted by the board was announced as follows:

Grades for general crops—0-9-27, 0-10-20, 0-14-14, 0-20-20, 0-18-36, 0-30-30, 2-12-12, 3-9-18, 4-8-12, 4-12-12, 5-10-10, 6-6-12, 6-8-6, 6-12-6, 8-8-8, 10-10-10, 10-20-10, 10-20-20, 14-0-14, (top dresser), 14-14-14, 20-0-20 (top dresser).

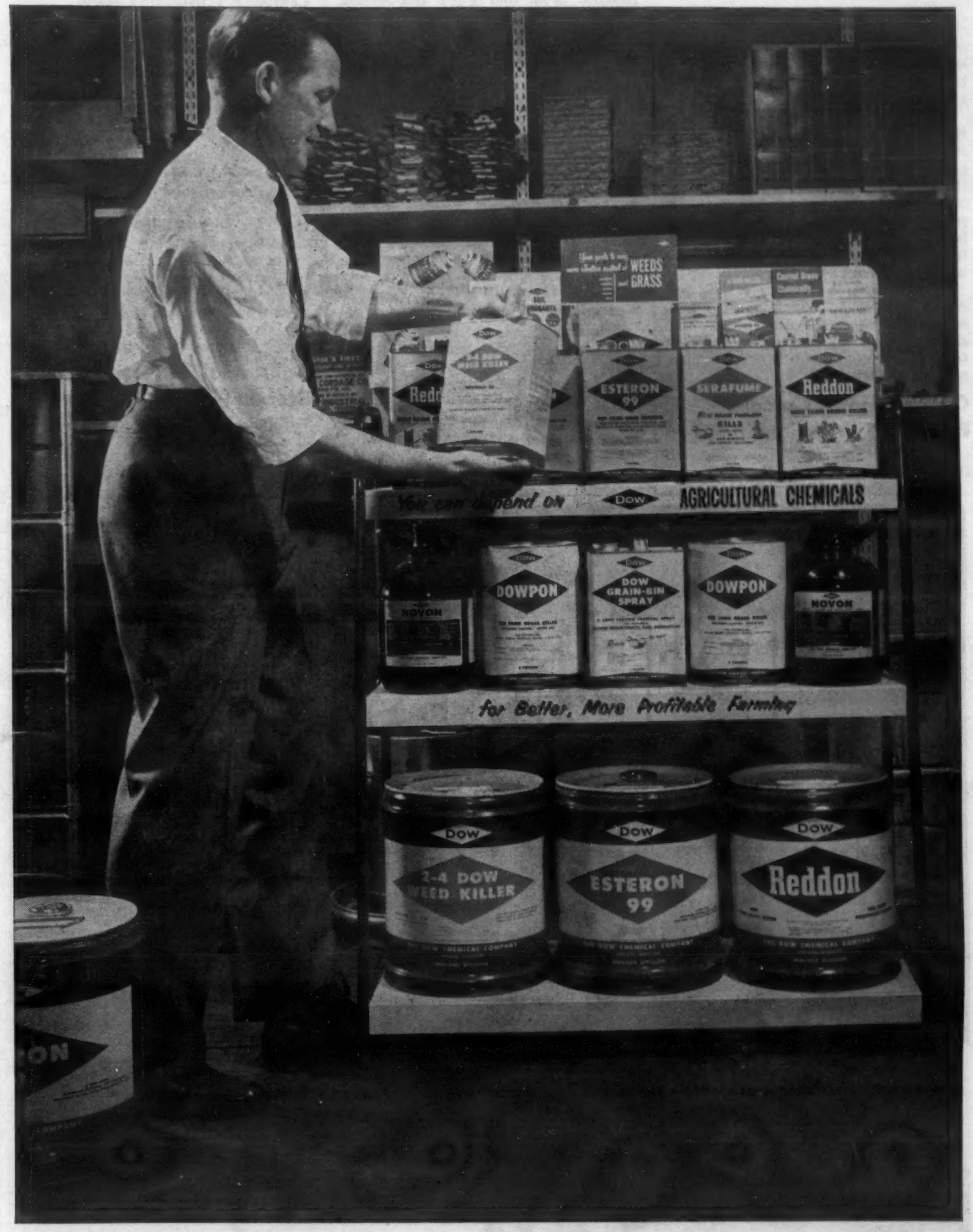
Grades for tobacco—2-10-8, 3-9-9, 4-8-10, 4-8-12, 4-9-3 (plant bed), 6-12-4 (plant bed), 6-12-15, 8-0-24 (top dresser), 8-8-8.

Turfgrass Conference

BLACKSBURG, VA.—Virginia Polytechnic Institute in cooperation with the Tidewater Turfgrass Assn., the Virginia Highway Dept., the Virginia Truck Experiment Station, and others has arranged a conference and tour for persons professionally interested in turfgrass to study turf primarily in the Norfolk area and eastern Virginia on June 17-19. The formal program will be held at the U.S. Naval Amphibious Base at Little Creek, Norfolk, Va.

TWO NAMED VICE PRESIDENTS

NEW YORK—Harry Y. de Schepper and Charles E. Griffith have been elected vice presidents of R. W. Greeff & Co., Inc., New York. Both have been with the company for over 20 years and are also members of its board of directors.



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You'll profit by handling the famous line of Dow weed killers, headed by the nation's largest selling brand, Esteron 99*. You'll be able to supply the exclusive Dow grass killer, Dowpon*, and the most complete line of specialized soil fumigants. You'll profit with Korlan*, America's newest, neatest farm fly killer. Customers will come to you, too, for special needs like defoliants, insecticides and animal health aids like Trolene*, (Dow ET-57) the new systemic cattle grub killer.

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INSECT NOTES

(Continued from page 4)

B. Fenne, plant pathologist at Virginia Polytechnic Institute, reports.

He says the season's first report of the disease in the state was received from Lunenburg County. The appearance of the disease carries with it a warning to all tobacco growers to spray immediately and properly to prevent its spread. Weather has delayed spraying in many areas, and blue mold could be much worse than usual this year.

Anthracnose, a relatively new tobacco disease in Virginia, also has been reported this season, Mr. Fenne says. At the same time growers spray to control blue mold they will also control anthracnose.

Codling Moth, Curculio Prominent in Indiana

VINCENNES, IND. — Oriental fruit moth is active in the Sullivan, Indiana area, and some red-banded leaf roller damage is occurring at Covington and Sullivan.

First adult codling moth was taken in a bait trap on May 13. First egg mass found on May 16. A cardboard band containing 1,000 overwintering larvae was placed in the orchard to check emergence. So far, about 30% of these have emerged as adults. First worm activity in orchards is expected about May 27, but light protection was needed earlier.

May 19, 119 adult plum curculios were jarred from 5 peach trees in an abandoned orchard, as compared to 186 for the previous week. A few curculios are still present in commercial peach plantings.

Adult and nymph populations of European red mite continue to be quite low. The number of second brood eggs is increasing.

The relatively high numbers of rosy aphid of last week seem to be under control in most commercial orchards of the area.—Merrill L. Cleveland.

Ontario Classifies New Weed as Noxious

TORONTO, ONT., CANADA—Yellow rocket, or winter cress weed, is reported by the field crops branch of the Ontario Department of Agriculture to be spreading rapidly in the province, and has now been classed as a primary noxious weed. Under the Canada Seeds Act, not a single yellow rocket seed may be present in No. 1 grade clover seed. Ontario authorities point out that planting only this high grade seed is of primary importance in controlling the weed.

Canadian farmers are advised that herbicides may be used in controlling this weed, and are also urged to repeat applications and to keep close watch for subsequent infestations.

California Fertilizer Sales Drop in First Quarter

SACRAMENTO, CAL. — Tonnages of dry mixed fertilizers for the first quarter of 1958 were slightly above those recorded in the same period of 1957, according to the state department of agriculture's report issued by Robert Z. Rollins, chief of the bureau of chemistry. Amounts of fertilizer materials sold were down slightly, however, as were agricultural minerals in the first quarter.

Totals of mixed fertilizers were 58,988 tons for the first three months of 1958 as compared to 58,246 tons in the same period last year. Grades showing increases included 15-8-4; 14-14-7; 4-10-10; 16-10-0; and the total of some 500 additional grades not designated.

Although most materials lost ground in 1958 as compared to the initial three months of 1957, anhydrous ammonia moved from 11,823 tons to 12,719 tons; ammonium phosphate from 664 to 861 tons; ammonium sulfate from 42,418 to 57,549 tons; and calcium nitrate from 14,187 to 14,971 tons.

The over-all reduction from 264,270 tons last year to 253,545 tons this year is regarded as being due to unusually wet weather and flooded conditions in many parts of the state, making usual application of fertilizer materials impossible.

Atlas Dedicates New Technical Center

WILMINGTON, DEL.—Atlas Powder Co. dedicated its new technical center in a short ceremony at the company headquarters in suburban Wilmington on May 23. The $3,000,000 facility, located next to the company's general office which was opened three years ago, will house the firm's basic research and chemical product development activities.

J. Caleb Boggs, Delaware governor who spoke briefly at the dedication, told the 150 local industrial and civic leaders, the 600 employees and members of the press who were present that the new center is evidence of Atlas' belief in steady, planned, corporate progress.

Ralph K. Gottshall, Atlas president, thanked the men and women of Atlas whose work helped make the technical center possible. He told the employees and guests that the technical center is essential to the continuing growth of the company. The new products that will come from this facility, he said, will broaden Atlas' base of operations and greatly stimulate its growth.

Mr. Gottshall explained that the company decided to go ahead with its expanded research and development program in spite of the present recession because it was essential to the company's progress.

Tolerances for Trithion Set for Additional Crops

NEW YORK — Residue tolerances for Trithion, insecticide-miticide developed by Stauffer Chemical Co., have been established by the Food and Drug Administration. The new regulations permit use of the material on 36 additional food crops.

The residue tolerances just established are: 0.8 ppm—apples, pears, crabapples, quinces, apricots, beans (succulent forms of snap beans, lima beans, soybeans), cantaloupes, cherries, eggplant, garden beets (both tops and roots), grapes, olives, peaches, nectarines, peas, peppers, pimentoes, plums, prunes, spinach, strawberries, tomatoes and watermelons; 2 ppm—almond hulls, oranges, grapefruit, lemons, limes, tangelos and tangerines; 5 ppm—sugar beet, both roots and tops.

Trithion had previously been registered for use on shelled beans, pecans, walnuts, seed crops, cotton and ornamentals and for post-harvest applications to certain deciduous fruit and nut crops.

N.J. SOCIETY ELECTS

TRENTON, N.J.—Tunis Denise of Freehold has been reelected president of the New Jersey Agricultural Society.

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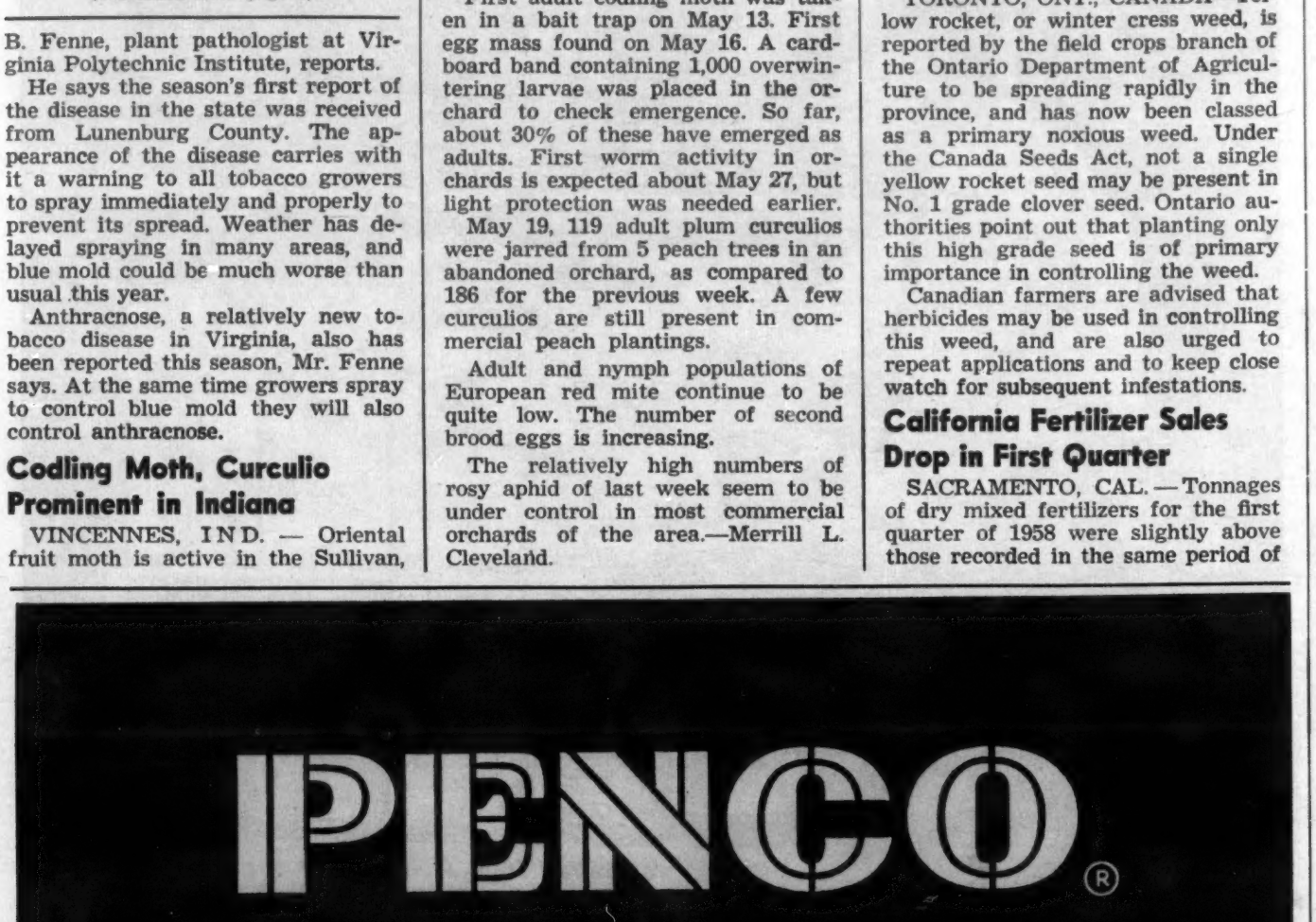

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Farmers' Attitudes Toward Fertilizer Use In the Midwest States

EDITOR'S NOTE: The accompanying article is the analysis of a study conducted for the National Plant Food Institute, Washington, by National Analysts, Inc., Philadelphia. The study was based on personal interviews with a representative sample of farmers. The article relates to data obtained from farmers in the following states: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North and South Dakota, Ohio and Wisconsin.

The study of the Midwest or Corn Belt farmers' attitudes toward the use of fertilizer stresses measurements of farmers' attitudes and attempts to establish patterns of behavior for farmers in relation to their use of commercial fertilizer. The importance of the data does not lie in the exact percentage of farmers who gave a specific answer, but whether most of the farmers or a few of the farmers gave a particular answer.

Level of fertilizer use: This was considered important as a means of classifying and analyzing replies. After the interviews were completed, each farmer in the sample was classified as to level of fertilizer use by a group of agronomists who were well acquainted with local farming conditions. Classifications of levels of use were:

High—Farmer generally using fertilizer at rates close to recommended level.

Medium—Farmer using fairly good level, but well below college recommendations.

Low—Farmer using some fertilizer but an amount very inadequate for his type of crops and soils.

None—Farmer used no commercial fertilizer on either of his two most important crops during 1956. (Does not necessarily mean he used no fertilizer on his farm.)

The answers given by farmers in the different use classifications varied substantially. These differences will be noted where they are significant. Questions were addressed only to farmers who operated farms of 100 acres or more.

What are the general characteristics of the Corn Belt farmer? (who operates 100 acres or more)

- Age—45% are 50 years old or older. Only 27% are under 40 years of age.
- Education—56% have only a grade school education or less. Only 7% have attended college.
- Financial status—The average farmer is a substantial businessman. Two thirds reported capital investments of $35,000 or more.

A breakdown showing percent with this investment according to level of use is:

High	71%
Medium	72%
Low	64%
None	57%

Farmers' incomes were related to fertilizer use.

Corn Belt farmers with gross income of $10,000 or more:

Level of use	Percent with gross income of $10,000 or more
High	52
Medium	45
Low	38
None	29

Average gross income per acre of crops and pasture varied with fertilizer use.

Level of use	Gross income per acre
High	$67
Medium	64
Low	50
None	42

Outlook: The farmer generally is pessimistic about "things." About 50% think "things" will get worse. Only about one fifth believe "things" will get better. Generally, he seems to feel there is little he can do about these "things" that are going to affect his future. The farmers who were pessimistic gave the following as reasons why they thought the future would be "generally worse." (some farmers gave more than one reason)

Reason	Percent
Cost of production	48
Prices and price situation	45
Government farm controls	26
Economic and market conditions	18
All others	32

Plans for the future: The majority either are satisfied or don't see how they can improve their present situation. Only 36 percent have plans, definite or indefinite, for increasing income during the next five years. When asked, "Do you have any plans, definite or indefinite, for increasing the financial returns from this farm during the next five years?", here were the replies:

	Percent
Yes	36
No	64

The farmer who is pessimistic about the future is not likely to plan for the future.

Characteristics of high-level fertilizer users are somewhat different from those of non-users. The high-level user . . .

Is younger—Only about 40 percent are 50 years old or older compared with 53 percent for non-users.

Has more income—52 percent have gross income of $10,000 or more as compared with 29 percent of non-users.

Has a bigger capital investment—71 percent have capital investments over $35,000 as compared with 57 percent of non-users.

Makes more money per acre—an average of $67.00 per acre gross income as compared with $42.00 for non-users and the national average for all farmers of only $46.00.

Has a better education—54 percent went to high school; 13 percent have at least some college training. Only 30 percent of non-users attended high school and only 3 percent college.

Which of the following characteristics in the opinion of a Corn Belt farmer makes a really good farmer? (most farmers gave more than one reason)

	Percent
He uses better crop rotation methods	39
He uses more fertilizer per acre	34
He has the most fertile land to begin with	24
He works harder and longer	23
He pays more attention to soil erosion problems	22
He has more machinery	20
He cultivates more land	17
He uses better quality seed	14
He gets a better yield per acre	8

It seems significant that he rates the use of fertilizer as one of the important marks of a good farmer. The significance is that farmers and especially users, appear to have a positive (favorable) attitude toward the use of commercial fertilizer.

What is the Corn Belt farmer's attitude?

He seems to relate fertilizer use to greater production rather than to lower cost per unit, even though he is worried about cost of production.

He tends to think of an investment in commercial fertilizer as a financial risk with uncertain benefits. He worries about injury to crops from increased use of fertilizer but does not worry about injury from heavy applications of manure. Level of use is more often influenced by fear of adverse effects than by the promise of economic rewards.

He thinks the big advantages of commercial fertilizer are that, "It is easier and quicker to apply" and "soil needs can be supplied more accurately." (As a disadvantage, farmers listed "difficult to apply" as next to cost.)

If farmers were offered unlimited supplies of either manure or commercial fertilizer, which would they choose?

Would Choose Manure 67%

Principal reasons given:*

Conditions the soil	73%
Lasts longer in soil	18%
Cheaper	18%
Knows results through experience	13%

Would Choose Commercial Fertilizer 33%

Principal reasons given:*

Easier, quicker to apply	52%
Soil needs can be supplied accurately	50%
Increases yield	13%
Gives plant a quicker start	10%
Chemical content can be determined accurately	7%

*Multiple answers

He thinks the big advantage to animal manure is that it "conditions the soil."

He says he would use only slightly more fertilizer than he now is using if he had "plenty of cash available and wanted to get the best investment for his time and money."

The average farmer's knowledge about fertilizer is limited.

Over 80% of all Corn Belt farmers say they know the plant food elements their soil needs, but . . .

Nearly 50% gave wrong or partially wrong answers when asked to choose grades which would correct specified plant food deficiencies. When

(Turn to FARMERS' ATTITUDE, page 12)

SHOP TALK

OVER THE COUNTER

By Emmet J. Hoffman
Croplife Marketing Editor

Have you passed a long-time customer on the street recently and then thought to yourself that it's been a long time since he was in your store? Maybe there are a few other old customers who haven't been as regular as you would like them to be. Even if there are only a few, it might be wise to do a little thinking about them. Competition being what it is today, it behooves every dealer to keep the customers that he has.

Perhaps—if you are aware of a couple of instances where the former dependable customer has been absent for a few months—there was a small inattention to personal service. Perhaps it was one of the salesmen who failed to please. Was it some small discourtesy or carelessness in handling the customer?

Often a customer is annoyed because he is told that the store is temporarily "out" of an item. This doesn't help keep a customer coming back because invariably he will shop elsewhere and find what he is looking for.

Carelessness in handling deliveries has lost many good customers. Promptness, courtesy while making the delivery and regard for the customer's property are little details but actually mighty important to keep the customer's good will.

Lack of equipment and services which adequately supply the farmer may cause a customer to leave for another store. And of course such a customer will usually take the rest of his business with him.

Lack of product information and being unable to properly advise a customer may cause the customer to lose faith in the dealer and his staff, resulting in lost business. It's a constant and necessary job to learn all the basic points about a product—and especially farm chemicals—because their success depends entirely on their proper use and application.

If you think back as to why you haven't had much of John Jones' business lately, maybe you can uncover some little detail which was unintentionally overlooked. Whether you do or not, it might be wise to go out of your way to have a talk with John or buy him a cup of coffee to get at the source of any possible misunderstanding.

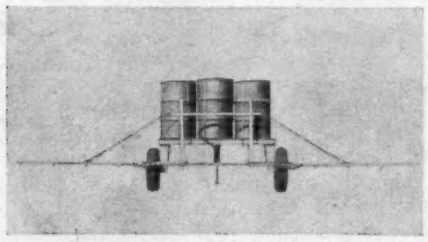
What's New...

In Products, Services, Literature

You will find it simple to obtain additional information about the new products, new services and new literature described in this department. Here's all you have to do: (1) Clip out the entire coupon and return address card in the lower outside corner of this page. (2) Circle the number of the item on which you desire more information. Fill in your name, your company's name and your address. (3) Fold the clip-out over double, with the return address portion on the outside. (4) Fasten the two edges together with a staple, cellophane tape or glue, whichever is handiest. (5) Drop in any mail box. That's all you do. We'll pay the postage. You can, of course, use your own envelope or paste the coupon on the back of a government postcard if you prefer.

No. 6743—Trailer Sprayer

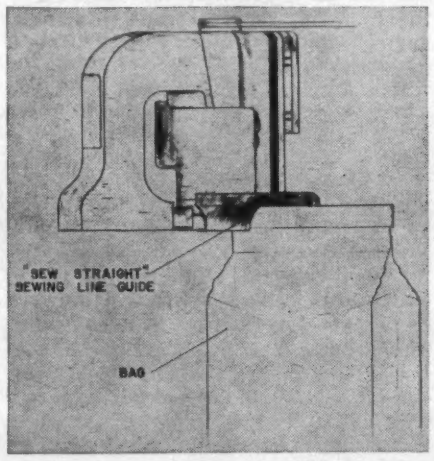
A new trailer sprayer combination for a wide range of farm spraying needs has been introduced by the F. E. Myers & Bro. Co. The spraying combination includes a heavy-duty trailer (3TR), a boom (ET21) and a "Myers Du-All" pump (5706). The all-steel trailer comes equipped with six barrel hook rods and may be used with one, two or three 55-gal. drums. When fitted with 6:70-15 tires, the trailer has a ground clearance of approximately 30 in. Tread width can



be varied from 60 to 80 in. To secure details check No. 6743 on the coupon and mail it to Croplife. Please print or type name and address.

No. 7019—Sewing Line Guide

Users of open-mouth multiwall bags have available a new sewing line guide developed by the Union Bag-



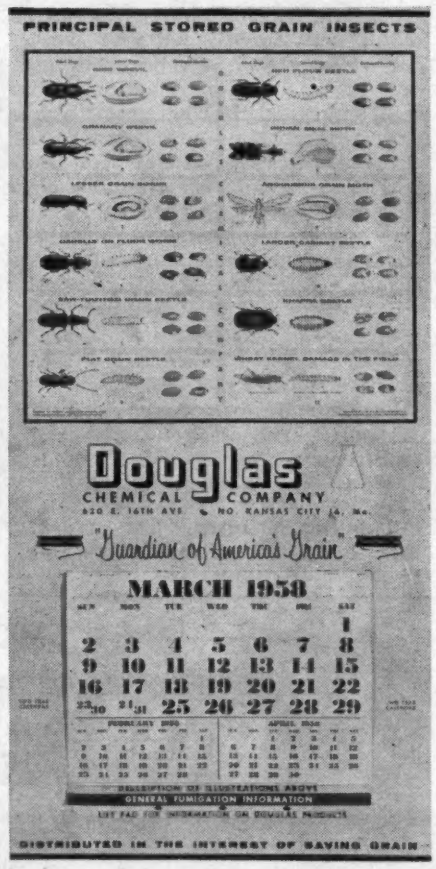
Camp Paper Corp. Called "Sew-Straight," the guide is said to insure a constant, uniformly-sewn top closure and improves the appearance of the package. Closure within one inch of the bag top is permitted. Check No. 7019 on the coupon and mail it to secure details. Please print or type name and address.

No. 6741—Rotary Driers, Coolers

Fertilizer Engineering & Equipment Co., Inc., has available drawings showing construction and operating features of its rotary driers and coolers. The drawings are in an 8-page bulletin which describes features of the units such as auxiliary controls and safety systems. Check No. 6741 on the coupon and mail it to Croplife to secure the bulletin.

No. 7010—Grain Insect Calendar

The Douglas Chemical Co. has prepared a full color two-year calendar with illustrations of 12 principal stored grain insects. The insects are



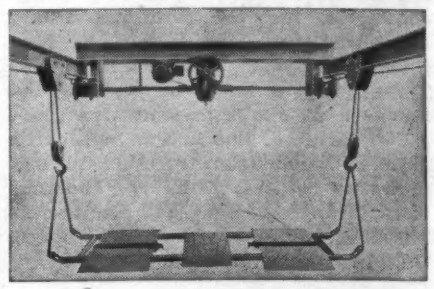
shown in their adult and larval stages and in actual size. Habits of the insects are also described. Check No. 7010 on the coupon to secure details.

No. 6742—Irrigation Guide

An irrigation performance guide slide rule has been prepared by the Buckner Manufacturing Co., Inc. The guide relates such factors as spacing of sprinklers, precipitation rate, total gallons per minute, number of sprinklers, nozzle size, pressure psi, pipe length and pressure drops. Instructions for use are printed on the guide. Check No. 6742 on the coupon and mail it to Croplife to secure details.

No. 6014—Truck Hoist

The Triumph Division of the C. O. Bartlett & Snow Co. has added a



heavy-duty truck hoist to its line. The hoist is available in three standard sizes having gross vehicle weight inclined dumping capacities of 15,000 lb., 25,000 lb. and 37,500 lb., respectively. The hoisting mechanism is stationary. The design leaves the center area of the driveway clear so the cab of a truck can be lifted up between the I-beams if necessary. The hoist's motor is totally enclosed. Check No. 6014 on the coupon and mail it to secure details. Please print or type name and address.

No. 6740—"Nurse Tank" Transport

General Metals, Inc., is now in production on a new trailer-mounted 1,000-gal. "Nurse Tank" transport. The transport is designed for hauling nitrogen solutions and liquid fertilizers from storage tanks to the farm and out to the field. It serves as a source of supply for trailer or tractor applicator units and is used in putting the solutions on the field. The unit is especially designed for nitrogen solutions, and may also be used for transporting insecticides, weed killers and other liquid products. The transport can be backed as easily as any farm trailer and can be turned as short as any car, it is claimed. The transport unit consists of trailer, saddles, tank, fittings, hose, gauges, air compressor, front end jack, trailer hitch and all necessary equipment. Check No. 6740 on the coupon and mail it to secure details. Please print or type name and address.

No. 6734—Mulch-Laying Machine

A new machine for laying black polyethylene film for mulching purposes has been announced by the Bakelite Co., Division of Union Carbide Corp. The machine lays film at a speed of about one acre per hour. In a 1957 experiment with cantaloupes, film cost was $160 per acre and melon yields were increased nearly three times compared with the check plot. The mulch is laid prior to planting. Existing farm implements may be utilized in rigging up the machine. Secure details by checking No. 6734 on the coupon and mailing it to Croplife. Please print or type name and address.

No. 6725—Front-End Loader

The Frank G. Hough Co. has announced production of an entirely new "Payloader" model, the H-25. It is a rubber-tired front-end loader with rated carrying capacity of 2,500 lb. It can be operated out of boxcars having 6-ft. doors. Company officials say that is has a different frame,

Also Available

The following items have appeared in the What's New section of recent issues of Croplife. They are reprinted to help keep retail dealers on the regional circulation plan informed of new industry products, literature and services.

No. 6737—Range Fertilization Leaflet

A leaflet entitled "A Report to California Ranchers" presents case histories of California range demonstrations. The report was prepared by Balfour, Guthrie & Co., Ltd. and describes field operations carried out by the company, individual ranchers, soil conservation districts and California State Polytechnic College. Results showed a $16.99 average increase in profit per acre, the leaflet states. Check No. 6737 on the coupon and mail it to secure the leaflet.

Send me information on the items marked:

- ☐ No. 6005—Fork-Lift Truck
- ☐ No. 6011—Boom Truck
- ☐ No. 6014—Truck Hoist
- ☐ No. 6015—Pick-Up Lift
- ☐ No. 6016—Bulk System
- ☐ No. 6724—Tanks
- ☐ No. 6725—Loader
- ☐ No. 6727—Applicator
- ☐ No. 6729—Plant Tranquilizer
- ☐ No. 6734—Mulch-Layer
- ☐ No. 6737—Leaflet
- ☐ No. 6738—Seed Treatment
- ☐ No. 6739—Ad Mats
- ☐ No. 6740—"Nurse" Tank
- ☐ No. 6741—Rotary Driers
- ☐ No. 6742—Irrigation Guide
- ☐ No. 6743—Trailer Sprayer
- ☐ No. 7010—Insect Calendar
- ☐ No. 7019—Sewing Guide

(PLEASE PRINT OR TYPE)

NAME .....

COMPANY .....

ADDRESS .....

CLIP OUT—FOLD OVER ON THIS LINE—FASTEN (STAPLE, TAPE, GLUE)—MAIL

FIRST CLASS
PERMIT No. 2
(Sec. 34.9, P. L. & R.)
MINNEAPOLIS, MINN.

BUSINESS REPLY ENVELOPE
No postage stamp necessary if mailed in the United States

POSTAGE WILL BE PAID BY—

Croplife

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Reader Service Dept. Minneapolis 1, Minn.

wheels, axles, transmission, torque-converter, styling, bucket design, electrical system, hydraulics, brakes, engine, differential, etc., than other "Payloader" models. The unit has a 12-volt electrical system. Check No. 6725 on the coupon to secure details. Please print or type name and address.

No. 6011—Boom Truck

Details of a new type of boom truck, the "Hydro-Boom," have been announced by the Vanguard Engineering Co. The boom moves in all directions and is available in hand-operated or battery-operated models with or without power propulsion. Check No. 6011 on the coupon and mail it to secure details. Please print or type name and address.

No. 6016—Bulk System

"Kaiser Nest-A-Bin"—a product of the Kaiser Aircraft & Electronics Division of Kaiser Industries Corp., is described as a bulk handling and storage system for liquids and granulars in the feed, grain and other industries. The bins have a storage capacity of 77 cu. ft. Eight empty bins can be nested in the same cubic space occupied by one full bin. Secure details by checking No. 6016 on the coupon and mailing it to this publication. Please print or type name and address.

No. 6005—Fork Lift Truck

High stacking ability, plus easy access to low headroom areas, are claimed for the model 460 "Towmotor" fork lift truck equipped with "Triple Lift Mast." The manufacturer, Towmotor Corp., states that "Mast's" over-all lowered height of 71 in. permits safe entry into rail cars and low-ceilinged storage areas. The maximum lift is 144 in. Check No. 6005 on the coupon and mail it to secure details.

No. 6015—Pick-Up Lift

The "Express-O-Lift," a hydraulically operated pick-up lift gate designed specifically for ½- and ¾-ton pick-up trucks with express-type bodies is a new addition to the lift gate line manufactured by the An-

thony Co. The unit will raise or lower loads up to 800 lb. from a truck, it is claimed. The unit can be bolted to the truck body in place of the tail gate. A small electric motor drives the hydraulic mechanism. Check No. 6015 on the coupon and mail it to secure details. Please print or type name and address.

No. 6739—Advertising Mats

Advertising mats made up for dealers who want to advertise in their local newspapers certain farm and orchard chemicals manufactured by the U.S. Rubber Company, Naugatuck Chemical Division, have been prepared. Information about the mats may be obtained by checking No. 6739 on the coupon and mailing it to Croplife.

No. 6738—Seed Treatment Data

A comprehensive 54-page book which describes the properties and uses of seed treating compounds has been published by Corn States Hybrid Service. It contains a compilation of article reprints which detail the results of experiment station studies of seed treatments conducted throughout the country. The treated seeds were tested in cold test chambers, greenhouses, seed fields and on farms. Also included in the publication are descriptions of the various formulations now available and the treatments recommended for control of fungi, smuts, seed decay and seedling blight. Specimen labels for each formulation are bound into the book. Secure the book by checking No. 6738 on the coupon and mailing it to Croplife. Please print or type name and address.

No. 6729—Plant Tranquilizer

A chemical tranquilizer for plants has been developed by United States Rubber Co. It will be marketed for use on selected crops for the first time this season. Called by the trade name, "Duraset-20W," the product is said to increase plant yields by reducing the effects of shock and stress caused by such conditions as heat spells and sudden cold snaps. Successful field tests have been performed by using the product on tomatoes, cotton, cherry trees, alfalfa, soybeans and other fruits and vegetables. Check No. 6729 on the coupon and mail it to secure details.

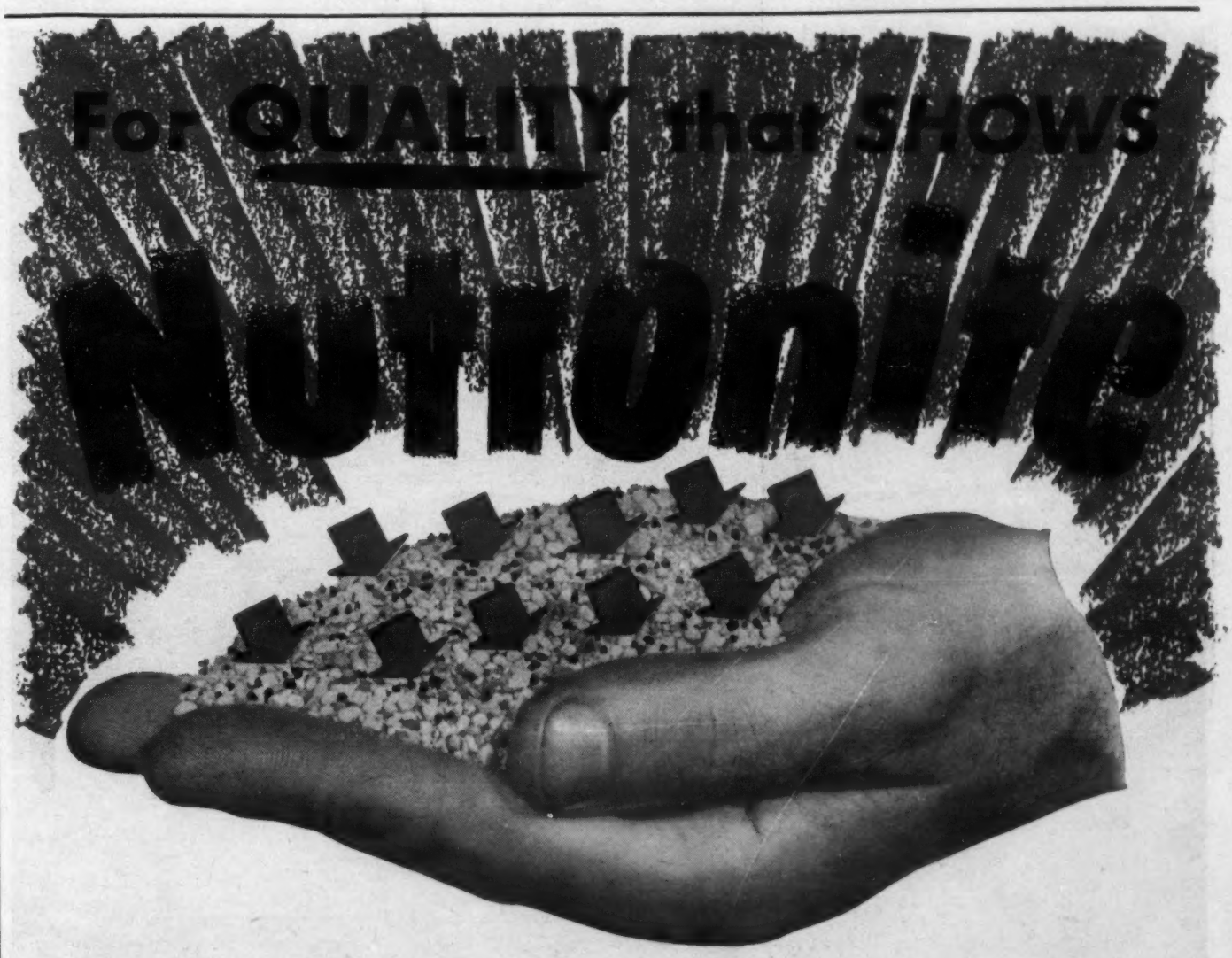
No. 6724—Rubber-Lined Tanks

The Gates Rubber Co. has prepared a new folder describing its "50-H rubber-lined tanks" and listing tank specifications for both pressure and non-pressure fertilizer chemicals. The

literature states that Gates tanks "give permanent corrosion protection for all fertilizer solutions." The tanks have a 3/16-in. rubber lining "welded" to the steel surface, states the folder. Check No. 6724 on the coupon and mail it to secure details. Please print or type name and address.

No. 6727—Trailer Applicator

General Metals, Inc., has developed a new trailer applicator, the model TPD-200, for top-dressing of nitrogen solutions or complete liquid fertilizers. The unit is said to be ideal for fertilizing pastures, small grain and row crops, and up to 200 acres may be fertilized in one day.



..and quality you can *talk* about!

YOU CAN BAG NUTRONITE FOR LAWNS

Bag Nutronite to fill out your line of lawn and garden fertilizers. Golf courses use large quantities, too. For information on this profitable market for an all organic fertilizer write Smith-Rowland Co., Norfolk, Virginia.

Nutronite (formerly Smirow) adds to the selling power of your mixed fertilizers. Plainly visible Nutronite assures your customers of added growth and profits . . . brings back satisfied customers year after year.

Nutronite is the 100 percent natural organic addition to mixed fertilizers. Its nitrogen is highly water insoluble and 90% available—for that all-season effect on plant growth.

Nutrition + Nitrogen = Nutronite

Let us figure the cost of Nutronite delivered to your plant.

SMITH NUTRONITE ROWLAND

SMITH-ROWLAND CO.

P. O. Box 1219, Norfolk 1, Va.

FARMERS' ATTITUDE TOWARD FERTILIZER

(Continued from page 9)

asked what fertilizer to use (given a choice of four grades):

(a) to meet a nitrogen deficiency

(b) to meet a potash deficiency

Here's how Midwestern farmers answered:

	All farmers	High users	Non-users
Both answers right	50%	67	28
Both answers wrong	33%	13	59
One right, one wrong	17%	20	13

Farmer's knowledge and level of use are related. Six out of ten fertilizer users knew the correct answer to both questions compared to only three out of ten non-users.

The average farmer doesn't seem to understand clearly the meaning of analysis, grade, or ratio.

About 30 percent of all Corn Belt farmers apparently change their fertilizer practices from year to year indicating uncertainty, perhaps dissatisfaction, or a willingness to improve.

Established agricultural publications are principal reading sources.

Seven of every ten farmers recalled reading about fertilizing their most important crop.

Farm magazines—especially farm magazines concerned with local and regional interests—were mentioned most frequently by those who said they had read about fertilizer.

Government and agricultural extension publications were next in order as reading sources.

Literature published by fertilizer manufacturers rates very low.

Newspapers rate surprisingly low, but undoubtedly are valuable for calling attention to meetings, demonstrations and availability of information from other sources.

Creating awareness . . . seems to be an important function of the mass media (farm magazines, radio, television and local newspapers). This confirms conclusions reached in other studies.

Expected results and the advantages of using fertilizer are the subjects mentioned most frequently by those who reported reading or hearing about fertilizer. More specific subjects, such as analysis, amount, method and time of application were mentioned much less frequently—particularly by listeners to radio and television.

While reading and hearing about fertilizer seem to lead to specific action much less frequently than do personal discussions, these sources may have much more influence on a farmer's initial thinking about fertilizer than do discussions.

Mass media appear to be the only means of communicating with many farmers who apparently do not come in contact with other sources.

While these data indicate that farmers who use fertilizer generally found reading and hearing about fertilizer to be helpful, non-users generally did not think either was helpful. However, non-users did indicate sufficient exposure to published and broadcast information on fertilizer that their practices should have been influenced if this material had been understood and believed, and seen as applying to their own operations. Local orientation of material which the farmer reads and hears probably would make it easier for him to identify his own personal situation with the information.

He seeks information and advice from others . . . to overcome his uncertainty and lack of knowledge.

He rates county agents and agricultural college publications very high as sources of "practical fertilizer information."

Source	Rating
County agent	70
Agricultural college publications	41
Local dealers	30
Farm magazines	28
Neighbors	20
Manufacturers' salesmen ..	5
Television	2
Newspapers	2
Radio	2
Other	1

He apparently respects colleges as a source of information and identifies their efforts with his welfare. But . . .

He more often discusses his fertilizer needs with others. When listing whom he talked to about the amount and analysis to buy, local dealers were most important. Neighbors and family members also ranked above county agent. (Nearly 55 percent of all farmers reported one or more such discussions. 63% of the users reported discussions compared with only 42% of non-users.)

Persons talked with	Frequency (Percent) Users	Non-users
Local dealers..	39	32
Neighbors	17	19
Family members	17	14
County agent..	12	14
Soil conservation man ...	7	3
Other	7	15

Sixty-three percent of users reported one or more discussions, compared with 42 percent of non-users.

He talked to different people about different things. The four things that he was most interested in were analysis, amount, price and the expected results from using fertilizer. He talked over price and amount most often with his family members—in other words, he wanted his family's advice and opinion as to "how much we should use and how much can we afford to use." He turned to neighbors to get information on analysis, amount, and expected results. It is significant that he relied very heavily on his neighbors for information on whether or not it was a good thing to use fertilizer. He went to the professional agricultural worker to get information on what analysis and what amount he should use.

Also, he talked to the professional agriculture worker about when and how to apply commercial fertilizer. This indicates that in those areas where he has technical questions he tends to turn to the agricultural expert. Talking to the dealer, he was interested in price, analysis and amount in that order. He did not go to the dealer to find out what expected results he would get from fertilizer use. The answers the farmers gave here are consistent with those given to other questions throughout the study.

"As you recall, what did you discuss with (person or group)?—That

DUVAL
Drilling blast holes with a multiple mounted drill in the Duval mines near Carlsbad, New Mexico. One of the many processes which bring you . . .
High Grade Muriate of Potash . . .
HIGH ANALYSIS • DEPENDABLE SUPPLY • UNSURPASSED SERVICE
DUVAL SULPHUR and POTASH CO.
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is, did you talk over the amount you should use, the form, price, brand or what?"

	Family members %	Neighbors and friends %	Agricultural experts %	Dealers and salesmen %
Analysis	26	58	76	52
Amount	41	47	36	41
Price	49	22	18	59
Expected results of use, advantages of using	21	44	16	9
Brand	11	5	1	15
When and how to apply	..	6	17	8
Form	8	5	3	14
Degree of absorbency or availability to soil	..	..	..	1
Other	15	3	5	4
Don't know	2	..	1	1

Farmers apparently believe in soil tests.

64 percent of fertilizer users compared with only 32 percent of non-users reported having their soil tested.

Nearly half of those who didn't have a soil test said it was because of their own negligence.

Of fertilizer users who had their soil tested, only about 12 percent failed to follow at least partially the test recommendations.

While 70 percent of high-level users said they followed soil test recommendations completely, 57 percent of low-level users also said they followed recommendations completely. This information raises the possibility that many farmers only thought they were following recommendations, and indicates the desirability of re-examining soil test procedures and methods of presenting recommendations.

Where do farmers find out what nutrients their crops need?

About 4 out of 10 farmers say they relied on soil tests to find out what plant foods should be added to their soils. When we consider that only slightly more than half of farmers had had a soil test, this indicates that soil testing was given the major role as a source of information by those using it.

Own knowledge and experience are rated next to soil tests in importance as a source of knowledge of plant food needs.

There is considerable evidence that farm demonstrations and neighbors exercise a strong influence.

	Regional Total %	Level of fertilizer use High %
Soil test	39	63
Own knowledge, experience	34	27
Experimentation, demonstration plots	18	18
Other farmers	10	2
County agent or other agricultural expert	8	14
Reading	7	6
Agricultural course, school	2	2
Radio or TV	..	..
Other	2	..
Don't know	..	..

How do farmers decide how much and what kind of fertilizer to use?

He gave credit to his own judgment and his own trial and error. This is important, not that it indicates sources of influence, but that it indicates many farmers began to use fertilizer only after they felt it was their own idea.

When they did give credit beyond their abilities, soil test was most important, next were neighbor influences, followed by dealers, and the professional agricultural worker. The answers to the question about sources of practical fertilizer information provide a comparison of farmers' opinions of sources with those sources which actually provided the basis for action. Undoubtedly, there is some reflection of high standing of the agricultural college system in his crediting soil tests with providing him with information. If we assume that soil testing is synonymous with the agricultural college system (including county agent), then we have a consistent answer in terms of what the farmer said he believed to be sources of good information and those sources that he actually used.

Only 25% could recall having visited a fertilizer demonstration.

Over 30% of all farmers said they had done some experimenting with fertilizer on their own farms. Of these, over three fourths said the results were helpful, although only 9% said they led to specific action.

Practical farm demonstrations and personal experimentation seem to be more important in influencing low-level users and non-users who state they more often rely on the neighbor influence and trial and error methods. (It should be recognized that personal experimentation is frequently haphazard and can lead to wrong, as well as to right, conclusions.)

Farmers' Opinion as to Effects on Most Farmers of Seeing Demonstration Plots

Good effect—they see and think	54%
Positive effect—makes them decide to use	22%
No effect	8%
Negative effect	—
Don't know	16%

1. Do you know of any demonstration plot near here?

Yes	27%
No	73%

2. Have you ever visited such a demonstration plot?

Yes	25%
No	75%

Farmers need help in judging results from using fertilizer so that they can actually understand the part fertilizer plays in crop production. Well-planned demonstrations and guided experimentation permit farmers to see the results of fertilizer practices under circumstances that are easily related to their farming operations.

Why don't farmers use fertilizer?

Non-users most often gave "not enough money" as the reason for not using fertilizer. This most likely means that they use available money either for production expenditures they consider more likely than fertilizer to bring returns or for present consumption items they want more than the future returns they would expect from fertilizer.

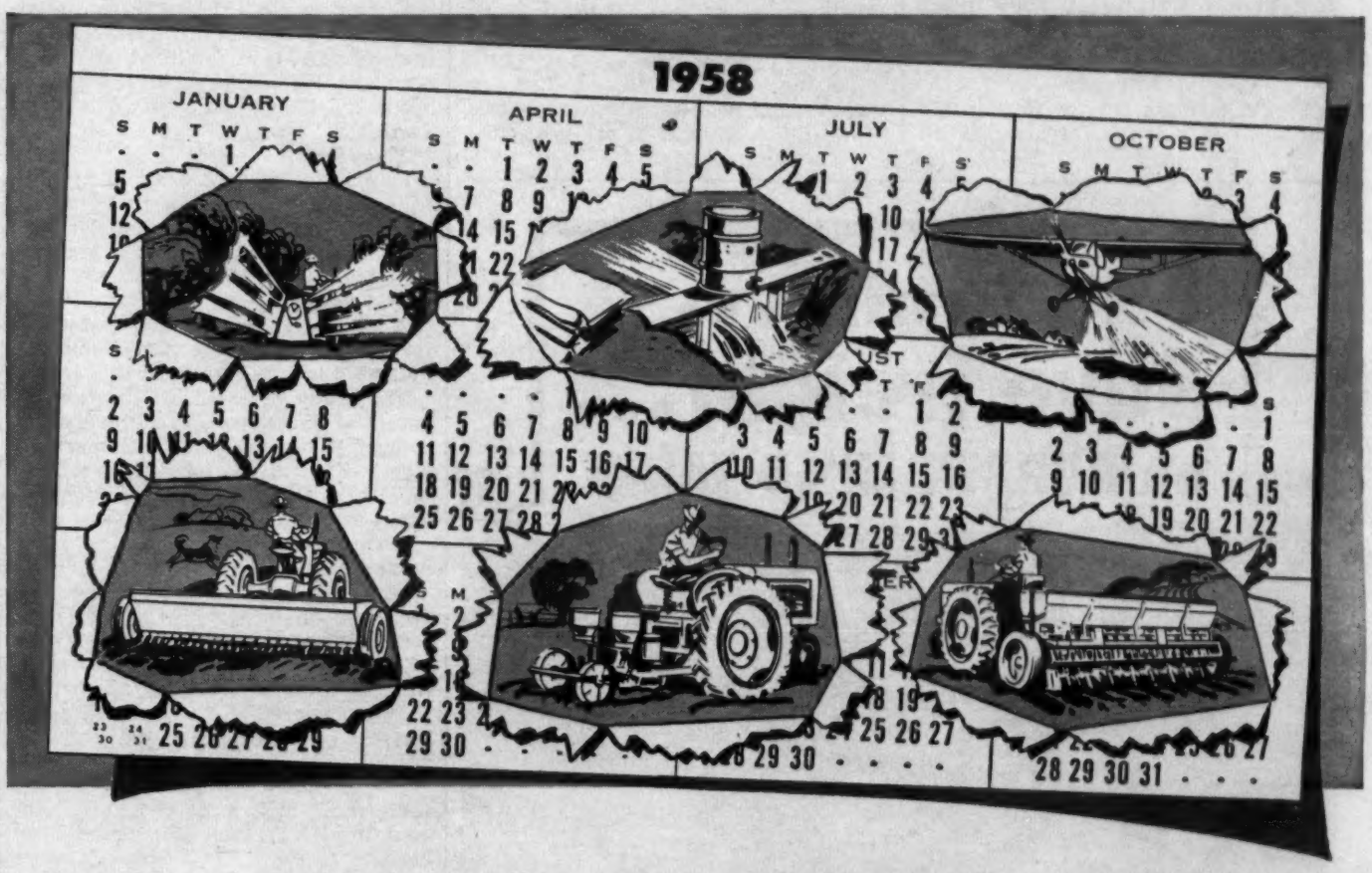
Farmers' reasons for not using any fertilizer in 1956:

Not enough money	31%*
Not necessary, crop did just as well without it	28%
Prefer animal or green manure	24%
Weather conditions not suitable	23%
Use some other farming practice instead	8%
Don't approve of commercial fertilizer	6%
Other	20%

*Multiple answers

"Not necessary" was given almost as often as lack of money as a reason for not using fertilizer. Farmers were not convinced they needed to use commercial fertilizer.

Weather was given by almost one fourth of farmers as reason for not using fertilizer. Farmers apparently believe the unfavorable weather is



'Round the Calendar

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when you sell these

2 Grace Fertilizers

✓ **Grace Urea Prills**

When your customers require nitrogen in the solid form, you'll find it sound (and profitable) business to recommend Grace Urea Prills, *guaranteed 45% nitrogen.* This is a special free-flowing form of urea with *definitely superior* anti-leaching qualities—ideal whenever a solid nitrogen is preferred.

✓ **Grace Agricultural Grade Crystal Urea**

And Grace Agricultural Grade Crystal Urea is the *right* recommendation for foliar spraying, because this urea is *specially formulated* for foliar application. Its low biuret content (less than 0.2%) makes it safe; it is completely water soluble, won't clog spray equipment; and it is 46% nitrogen.

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Grace Chemical Company *A Division of W. R. Grace & Co.*

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likely to have a much greater adverse effect on results from fertilizer use than research results would indicate. (Research indicates that fertilizer frequently can be used to help overcome unfavorable moisture conditions and to increase the efficiency of water utilization.)

More than half of non-users gave reasons which display a personal bias against commercial fertilizer. Most of these either thought fertilizer was not necessary, or preferred organic fertilizer.

Conviction as well as cash or credit are needed to convince the farmer.

More farmers say they are willing to borrow money to buy fertilizer than actually do so.

About half of fertilizer purchases were paid for at the time of delivery. The other half was bought largely on short-term credit, yet . . .

63 percent of all farmers (87 percent of high-level users) say they either would or probably would borrow to buy fertilizer if they didn't have money available and if credit could be had "at a reasonable rate of interest."

Would farmers borrow if they did not have money for fertilizer (with money available at reasonable rates)?

	All Farmers	High Users	Non-Users
Certainly would borrow	39	80	7
Probably would borrow	24	7	25
Probably would not borrow ..	12	5	20
Certainly would not borrow ..	25	7	47

One third of non-users say they would or probably would borrow to buy fertilizer and, perhaps by coincidence, about an equal number of non-users gave lack of money as a reason for not using fertilizer.

Even though more farmers apparently are willing to borrow money to buy fertilizer than do so, they do not consult bankers on their fertilizer problems. Most farmers apparently are not inclined to seek bank credit on their own initiative.

Many farmers (as well as fertilizer salesmen) are not aware either of credit facilities that do exist or of the requirements for use of such facilities.

To buy more fertilizer, farmers undoubtedly need an adequate source of credit. A greater effort is needed to encourage more banks and other lending institutions to make provision where needed for fertilizer in their production loan programs . . . **but,**

Availability of credit alone will not stimulate farmers to use proper amounts of fertilizer. The frequency with which "lack of money" is listed as a reason for not buying fertilizer probably in itself reflects a low level of conviction as to the benefits which may be derived. This is substantiated by the fact that many farmers say they would use fertilization rates only slightly higher than they now are using if they had plenty of money available . . .

Therefore,

Efforts to improve availability and use of credit are likely to be much more effective if a simultaneous effort is made to upgrade farmers' thinking as to optimum rates of fertilizer usage.

A considerable market potential for fertilizer in the Corn Belt is indicated by the results of this study.

The study revealed information on potential use never before available.

Only 9 percent of all farmers in North Central Region use fertilizer on either of their two most important crops at rates approaching those recommended by their State Experiment Station.

36 percent of all farmers used no fertilizer on either of their first or second most important crops.

The other 55 percent used fertilizer at rates less, usually much less, than considered adequate in all cases for the type of crop and soil involved.

Of all those using fertilizer on their most important crops, 61 percent used less than 250 pounds per acre.

About one third of all farmers apparently change their fertilizer practices from year to year. This demonstrates a positive effort on the part of these farmers to improve their fertilizer practice. These farmers should be, and no doubt are, willing to use good ideas and information, especially from those in whom they have confidence and who are able to relate information to the farmer's own situation.

RINGING THE CASH REGISTER

Reason for Failures

Fifty percent of selling is human relations, says one sales authority. Carnegie Institute found that 80% of job failures were due not to lack of ability but to faulty human relations which cause a lack of desire.

Tact Advised

Use diplomacy and tact in any contact with salesmen, whether praising them or dressing them down. Employers should use facts to back up their suggestions. Employers should not jump to conclusions or let quick emotions rule their actions.

Alert Iowa Dealer Puts Statistics of Ag College to Work

By AL P. NELSON
Croplife Special Writer

Every fertilizer dealer needs some incentive in order to step up his sales campaign. One incentive, of course, is the opportunity to make more sales at a profit and thus increase the total annual profit.

But when a dealer also has some facts and figures on his sales potential he often finds that this knowledge puts extra steam behind his sales initiative.

Paul Strautz, manager of the Story-Polk Farm Service Co., Nevada, Iowa, says that studying statistics gathered by agricultural colleges helps him in working out effective sales campaigns.

For example, he read that the Iowa State College at Ames had estimated through surveys that 40% of Iowa farmers, despite a generally high corn production, are not using any commercial fertilizers as yet.

"This figure showed me that the sales potential was there," he said, "and so during this past year we mapped out a campaign. We put a full time salesman into the field calling on farmers and talking over their fertilizer problems with them. This salesman also worked on the idea that the first step in a fertilization study was to have soil tested."

The salesman, according to Mr. Strautz, worked with farmers showing them how to take soil tests, preparing the samples for mailing to the state college, and then calling back on farmers when the state college sent the recommendations. In most cases the recommendations were that more fertilizer be applied to bring the land to maximum production.

"Through this method we were able to sell fertilizer to some farmers who had used little or no fertilizer before," said Mr. Strautz. "Farmers who had been using fertilizer took their own soil tests as our salesman soon discovered. But by being on the job, willing to help farmers with soil tests, he got some additional orders."

The second step in this firm's fertilizer selling program was the purchase of a new mixer and spreader.

The firm's four spreaders are usually busy during the spring and fall spreading seasons. The average charge for spreading is $1 per acre, states Mr. Strautz.

The third step in this sales program consists of a monthly direct mailing to customers in the area. These mailings consist of either a mimeographed or a printed sheet and are sent to 2,500 persons in two counties. The bulk mailing runs up to 2¢ per copy, with the printing and handling adding up to another 2¢. Thus for 4¢ per copy the firm reaches many customers and prospects.

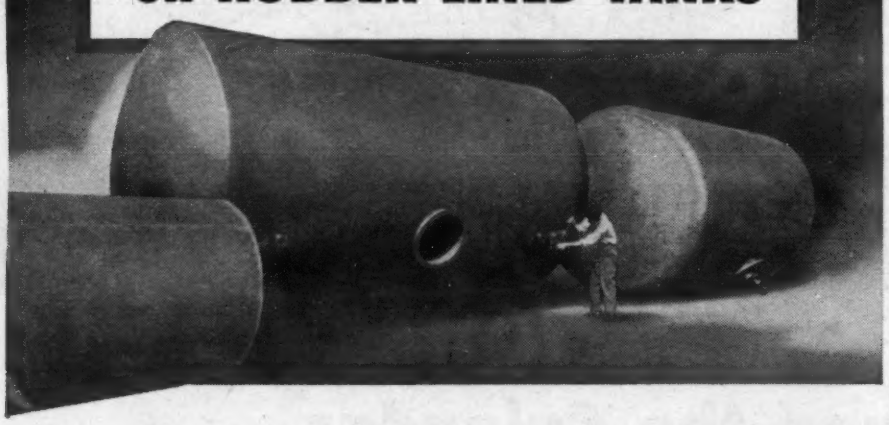
"This direct mail is quite individual and farmers like it," says Mr. Strautz, "and we have been able to trace quite a few orders to it. We are using direct mail quite heavily in 1958, but we also do some newspaper advertising as well. We may even do some radio advertising, so we'll be sure to reach most farmers in the two-county area."

The final step in the sales program is a series of educational meetings in which the dollar value of proper soil testing and fertilization is stressed. At such meetings, held throughout the territory, Mr. Strautz and his men have charts and colored slides which are shown to farmers attending. In addition, there are talks by Mr. Strautz and other officials about the value of fertilizer and the returns good fertilizer bring to the farmer.

"We stress the fact that when a farmer spends a dollar for fertilizer this is an investment on which he can double and triple his money," states Mr. Strautz.

The firm has been keeping accurate records on its spreader trucks. With heavy usage, the trucks are fully depreciated within a four-to-five-year period as a rule. The trucks are serviced regularly, with drivers checking them very carefully. The expense of running spreaders can be lessened considerably through good maintenance, states Mr. Strautz.

Save time...
Save freight...
on RUBBER LINED TANKS



The Gates tank lining plant at Sioux City, Iowa, is staffed by specialists experienced in the making of a single product—top quality rubber lined tanks.

That's why processing can be done with unusual speed...and at surprisingly low cost.

And, because this plant is centrally located in the agricultural area, shipping costs, in most cases, are considerably lower.

Special "50 H" Lining stops tank corrosion

Gates "50 H" Rubber Lined Tanks will store—with complete safety—*all* high and low pressure nitrogen solutions, balanced fertilizers and phosphoric acids. Thus, these versatile tanks will give you corrosion protection from any fertilizer chemical you may want to use in the foreseeable future.

For complete information, write direct to

The Gates Rubber Company Sales Division, Inc. Denver 17, Colorado

TPA 307

Gates
ONLY Rubber Lined Tanks
store all liquid fertilizers safely
GATES RUBBER LINED TANKS

ACTUAL PHOTO OF MONSANTO'S LION IN A DEALER'S STORE

To make more money – put LION in your store

LION BRAND AMMONIUM NITRATE advertising and field promotion help you sell more by getting across to your customers these facts:

- Lion brand is *guaranteed* to contain 33.5% nitrogen.
- Lion brand contains both of two important kinds of nitrogen: quick-acting nitrate nitrogen that gets plants started fast . . . and *long-lasting* ammonia nitrogen that resists leaching, feeds crops steadily for months.
- Lion brand is prilled . . . coated pellets of uniform size for easier spreading.
- Lion brand is *guaranteed* to flow freely not for just a year, but *until used*, when stored properly.
- Lion brand is now in a new green and yellow bag constructed to give greater protection.

MONSANTO'S PROMOTION AND ADVERTISING increase your sales and profits with:

- Advertising campaigns promoting mixed fertilizer as well as Lion brand in leading farm publications read by your customers.
- Local farm radio, billboards and local newspaper advertising support.
- Literature on crops grown in your area, including mixed fertilizer recommendations.
- Fertilization wall charts for your area.
- Soil test sample bags, memo books, decals, book matches, product samples, banners, folders and many other promotional items.

This year LION brand is better than ever . . . more uniform in size . . . can't cake when bags are stored properly.

* * *

Monsanto

World's largest producer of prilled Ammonium Nitrate

MONSANTO CHEMICAL COMPANY • INORGANIC CHEMICALS DIVISION • ST. LOUIS 24, MISSOURI

Table 1—U.S. production of some major pesticidal Chemicals by calendar years, 1954-57.

Chemical	1954	1955	1956	1957 1/
	1,000 lb.	1,000 lb.	1,000 lb.	1,000 lb.
Aldrin, chlordane, dieldrin, endrin, heptachlor, and toxaphene (combined production)	45,169	77,025	86,659 4/	75,424
Benzene hexachloride (gross) 2/	76,934	56,051	84,599 4/	39,313
Benzene hexachloride (gamma equivalent) 2/	11,500	10,700	14,700 4/	6,912
Calcium arsenate	2,758	3,770 4/	27,106 4/	20,000
Copper naphthenate	3,557	2,373	2,012	5/
Copper sulfate	130,616	156,176	133,616	141,360
2,4-D acid	30,184	34,516	28,835 4/	33,413
2,4-D acid esters	16,994	22,879	19,476)	26,824
2,4-D acid salts 3/	5,642	6,640	1,766)	
DDT	97,198	129,693	137,659 4/	123,758
Lead arsenate	15,620	14,776	11,756 4/	13,000
Methyl bromide	6/	9,222	10,204	5/
Nabam	6/	6/	5,486	5/
Parathion	3,889	5,168	6,529	5/
Pentachlorophenol	6/	6/	31,385	5/
Phenothiazine	3,437	6,202	6/	5/
Phenyl mercuric acetate	598	692	693	5/
Sodium chlorate	79,904 4/	93,944 4/	110,136	5/
Sodium dimethyl-dithiocarbamate	471	6/	2,179	5/
2,4,5-T acid	2,697	2,925	5,169 4/	5,067
2,4,5-T acid esters	3,883	3,793	7,045	5/
2,4,5-Trichlorophenol	2,785	3,806	6,735	5/
Ziram	1,117	963	1,436	5/

1/ Preliminary.
2/ Not including lindane grade.
3/ Sodium and amine salts.
4/ Revised figure.
5/ Figure not yet available.
6/ Figure not publishable because it would disclose individual operations.

Sources: U. S. Tariff Commission; U. S. Bureau of the Census; U. S. Bureau of Mines.

Table 2—U.S. production of synthetic organic pesticides.[1]

Calendar year	Production	Calculated producers' value
	(pounds)	
1953	355,953,000	$130,465,670
1954	419,274,000	157,599,020
1955	506,376,000	206,035,400
1956	569,927,000	274,894,750

1/ Includes a small proportion of plant hormones and soil conditioners.

Source: U. S. Tariff Commission

Three Major Pests Noted in Indiana

VINCENNES, IND.—Showers occurred the afternoon of May 11 and caused wetting conditions that left the foliage wet throughout the night of May 11-12.

Three insects that need special attention in apple orchards at this time are red-banded leaf roller, plum curculio and rosy aphid. Examination of egg masses in the Vincennes and Linton, Ind. areas May 6 and 7 showed that 74% of red-banded leaf rollers had hatched. Egg masses were readily found in several of the orchards visited.

On May 12, 186 adult plum curculio were jarred from 5 peach trees in an abandoned orchard as compared to 53 for the previous week. A few curculios were also jarred from commercial peach plantings on May 12, whereas adults had not been found in these plantings prior to this date.

Rosy aphid infestations heavy enough to warrant spray protection were observed on May 9. These orchards had not received aphid sprays prior to this date.

European red mite populations in all orchards are light. First brood adults began laying eggs May 7. Codling moth overwintering adults have not started to emerge.

Spring brood flight of adult Oriental fruit moth is tapering off. Heaviest flight occurred May 1. No larval entries have been found in twigs.

First pupa of lesser peach tree borer was found May 12. One pupa was found from 80 larvae observed.—D. W. Hamilton.

Larvicide Application Rated as Success

ANN ARBOR, MICH.—Application of a chemical larvicide in Carp Creek (Black Mallard River) April 15, 1958, was described May 14 by the Great Lakes Fishery Commission and the U.S. Bureau of Commercial Fisheries as a "technological success."

Dr. James W. Moffett, chief, Great Lakes Fishery Investigation, U.S. Bureau of Commercial Fisheries, said the application "demonstrated the effectiveness of analytical test equipment under field conditions and also resulted in a 100% kill of lamprey larvae resident in the stream."

The chemical used in the test was Dowlap (3, 4, 6-Trichloro-2-Nitrophenol), a product of The Dow Chemical Co., Midland, Mich. Dow representatives assisted in the stream application and the evaluation of analytical methods and equipment. Dowlap applied at the rate of 20 parts per million parts of water resulted in a 100% kill of lamprey larvae after 13 hours of treatment. Evaluation of the results showed a negligible damage to desirable gamefish and stream life.

Firm Interested in Opening Yazoo River

MEMPHIS—The Mississippi Chemical Co., Yazoo City, Miss., has joined 19 other state industries in backing a move to reopen the Yazoo River to barge transportation. The company announced it would move fertilizer by barge if the river is declared navigable.

The Yazoo Barge Line has applied to the Interstate Commerce Commission to operate as a common carrier on the river. There has been no commercial navigation on the river for the past 25 years but flood control reservoirs in northeast Mississippi have increased the navigability of the Yazoo and a nine-foot channel exists six months a year.

The U.S. Engineers tug "Fife" towed a barge down the river May 12 to help determine claims of the river's navigability.

Table 3—Manufacturers' stocks of pesticides (technical basis), Sept. 30, 1957.[1]

Material	All stocks reported as of Sept. 30, 1957 (1,000 lbs.)	Percentage of stocks (tech. basis) reported: as formulations:	1957 stocks as percentage of 1956 stocks (paired reports only)
Aldrin, chlordane, dieldrin, endrin, heptachlor, toxaphene	32,477	19.3	108
BHC, including lindane (gross basis)	21,220	--	--
Same (gamma basis)	5,916	26.4	103
Calcium arsenate	8,259	15.3	168
Copper fungicides	9,328	7.6	80
2,4-D (acid basis)	17,368	40.9	177
DDT	24,252	36.3	77
Fumigants, grain and soil	49,729	--	185
Lead arsenate	3,101	25.0	65
Miticides, miscellaneous	1,317	58.3	85
Organic phosphorus compounds	7,722	37.6	106
Sulfur, ground	30,282	53.6	87
2,4,5-T (acid basis)	4,327	40.6	307
Other fungicides	9,576	31.1	92
Other insecticides	13,524	42.8	136
Other weed killers	16,964	48.3	102
Miscellaneous, including rodenticides	3,400	--	--
Total	258,762	38.3	115

1/ Results of survey by U. S. Department of Agriculture in cooperation with the National Agricultural Chemicals Association.

Table 4.—Exports of pesticides, by calendar years, 1954-57.

Pesticide	1954	1955	1956	1957 1/
	(1,000 lb.)	(1,000 lb.)	(1,000 lb.)	(1,000 lb.)
Benzene hexachloride (gamma basis) 1/	2,286	4,234	3,411	1,918
Calcium arsenate	1,976	1,886	628	2,780
Copper sulfate	59,525	74,765	60,353	67,287
DDT 2/	42,329	53,252	57,194	64,096
Lead arsenate	710	1,080	2,563	1,216
Nicotine sulfate (40 percent)	200	397	424	479
Paradichlorobenzene	2,253	2,521	2,017	3,213
Pyrethrum extract	138	111	117	143
Sulfur formulations (20 percent or more S)	13,508	10,818	9,860	8,004
Sulfur, agricultural n.e.c.	31,914	26,432	10,431	10,073
Weed killers	14,829	15,799	19,651	19,200
Insecticides and fungicides, agricultural n.e.c.	94,571	111,366	101,234	111,314
Disinfectants, household and industrial	7,596	7,415	8,200	8,577
Pesticides, household and industrial n.e.c.	14,079	18,055	17,102	19,387
	($1,000)	($1,000)	($1,000)	($1,000)
Value of pesticide exports	62,857	78,980	81,856	86,002

1/ Contained in preparations of 1 percent or more; not including mixtures with 20 percent or more of sulfur.
2/ Contained in preparations of 25 percent or more.
3/ Preliminary.

Source: U. S. Bureau of the Census.

Table 5—Aerial application of pesticides and defoliants in the U.S. in 1955 and 1956.

Activity	Area treated		Materials dispensed			
			1955		1956	
	1955 1/	1956	Dry	Liquid	Dry	Liquid
	(1,000 acres)	(1,000 acres)	(1,000 lb.)	(1,000 gal.)	(1,000 lb.)	(1,000 gal.)
Insect control, total	36,439	38,667	265,808	51,274	198,075	57,503
Crops, orchards, etc.	27,434	28,088	264,442	41,184	196,313	49,051
Forests	7,236	4,811	411	7,770	262	3,211
Towns	1,506	5,332	218	1,858	246	4,614
Soils	263	436	737	462	1,254	627
Plant disease control	1,229	1,098	15,439	4,787	24,242	3,672
Weed control	5,291	5,641	119	8,649	131	9,793
Brush control	297	568	285	1,047	15	2,010
Defoliation	2,204	1,976	20,680	11,865	8,607	10,958
Total	45,460	47,950	302,331	77,622	231,070	83,936

1/ Revised. Source: CAA, Office of Flight Operations and Airworthiness

New Pesticide Firm Incorporated in Denver

DENVER — Rogers Chemical Co. here has been incorporated to manufacture, compound and sell insecticides and other chemicals and materials. Incorporators are R. E. Rogers, George E. Mather and Walter B. Wilkinson. The firm is capitalized at $300,000.

PESTICIDES

(Continued from page 1)

methyl phthalate, Indalone, ethyl hexanediol, dimethyl carbate, etc., has averaged over $300,000 a year.

Repellents for the control of biting flies on livestock are receiving study and development by the trade, especially in view of current restrictions against the use of many insecticides formerly applied in significant quantities to dairy animals and their quarters.

Consumption of fungicides during the 1957 season was down in New England and mid-Atlantic areas because of severe drouth.

Copper sulfate, although of much less importance as a fungicide compared with a decade ago, still is commonly used to combat certain plant diseases.

Mercury is required for the manufacture of certain fungicides and weed killers for agricultural use, and for slimicides such as phenyl mercuric acetate employed by the paper and pulp industry.

The Tariff Commission reported 1956 production of mercury fungicides to have been 527,000 lb. Included were 13 chemicals, largely seed treatment mercurials.

Zinc sulfate shipments to agriculture for use chiefly with nabam fungicides and as a corrective for soils deficient in zinc were greater in 1955 than since 1946.

Publication of a figure for pentachlorophenol production has been possible for the first time, because a third major producer entered the field recently. The quantity manufactured in 1956 was 31,385,000 lb. Use of pentachlorophenol by wood treating plants in 1957 declined to 11,167,000 lb. from 13,180,000 lb. in 1956.

The total acreage of U.S. farm land sprayed for weed control in 1957 has been estimated to be over 35,000,000 acres. This includes 12,000,000 acres of corn, over 18,000,000 of small grains, over 2,500,000 of pasture and range land, and 3,000,000 of miscellaneous crops.

About 270,000 miles of the 390,000 of railroad track in the U.S. are treated annually at an average cost of $60 to $65. More than 60,000 miles of highway roadsides were reported sprayed one or more times in 1957.

Many miles of roadsides outside the state highway systems are sprayed with herbicides. The total mileage of state trunk highways, county and state aid roads, and township roads reported sprayed for weed control in Minnesota in 1956 was 45,105 miles. North Dakota reported 22,281 miles of roadside sprayed by counties and townships for weed control in 1957.

In 1957 North Dakota farm land treated with chemicals for selective weed control amounted to 7,168,360 acres, compared to 2,711,556 so treated in 1953. Of the acreage treated in 1957, 86% received applications of 2,4-D, 11% received MCP, and about 2% TCA, with a small acreage being treated with other chemicals.

Supplies of 2,4-D and 2,4,5-T are abundant, stocks of 2,4-D as of Sept. 30, 1957 being up 77% over 1956; 2,4,5-T inventories were about three times the 1956 level. U.S. herbicide exports for the month of January, 1958, were valued at $633,232, of which 2,4-D and 2,4,5-T accounted for $420,487 or 66.4%.

Since July 1, 1957 new infestations of khapra beetle have been found on 88 rural and urban sites in the states of Arizona, California and New Mexico, and the Republic of Mexico. Six sites previously treated were found reinfested. For the most part the new sites have been confined to relatively small properties in rural areas where the spread has been accounted for by the movement of food and livestock feed.

Since the inception of the eradication program a total of 525 sites have been found infested in Arizona, California and New Mexico, and 66 sites in the Republic of Mexico, bringing the total to 591 sites known to be infested, with a total volume of 144,197,541 cubic feet.

As of April 1, 1958 methyl bromide fumigation treatment had been completed on 548 sites with a total volume of 137,503,239 cubic feet. The 43 known remaining sites with a volume of 6,694,302 cubic feet will be scheduled for treatment prior to July 1.

Sales of soil fumigants in 1957, largely for nematode control, amounted to an estimated 15 million dollars, compared to barely one million ten years ago. The leading consuming area is the Carolinas, principally tobacco land; second in importance are the pineapple fields of Hawaii. Fumigation of soil for vegetable crops is increasing rapidly and treatment of California cotton land is growing.

Red squill imports during the last three years were as follows:

1955	119,201 lb.
1956	43,292 lb.
1957	12,858 lb.

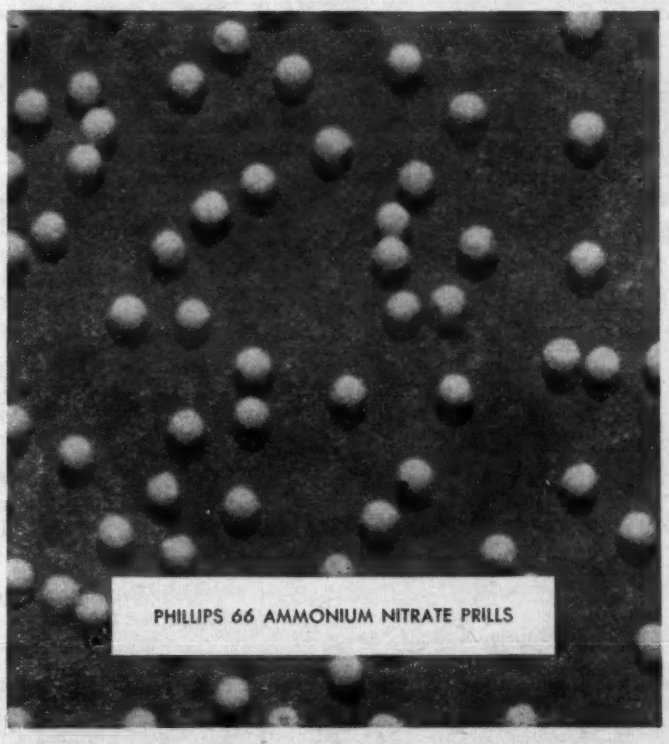
Use of fuller's earth and bentonite for pesticide formulation rose in 1956 while use of talc and pyrophyllite fell off somewhat. One factor in the growth of fuller's earth for this purpose presumably is the development of formulations composed of impregnated granules of attapulgite. Vermiculite also is utilized in the production of granular pesticides.

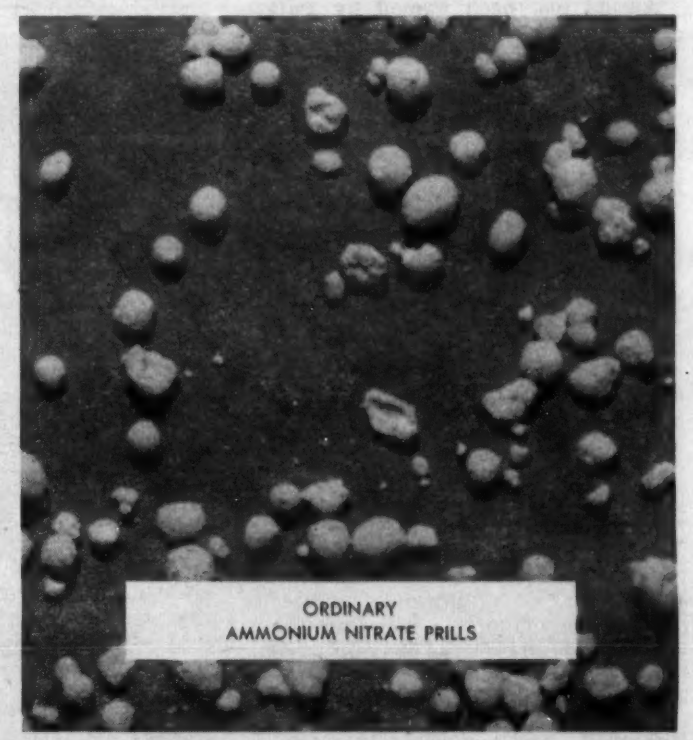
Emulsifier sales are more uniform for herbicide formulations than for other pesticide preparations. Insecticide and fungicide consumption fluctuates rather widely because infestations of insects and plant diseases are heavy in years favorable for development, while in other years these pests may be at a low level.

However, the percentage of emulsifier used in formulations is generally not so high as formerly because of improvements in emulsifier efficiency. Sales were down somewhat from an estimated 13,000,000 lb. in 1956 to 10,000,000 lb. in 1957. These figures probably do not include the output of captive producers, those that use their own emulsifier output in the formulation of finished pesticides.

NAMED TO COMMITTEE

CARLSBAD, N.M.—Thomas G. Ferguson, vice president and general manager of the National Potash Co., has been appointed to the New Mexico Economic Development Commission's advisory committee.





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Phillips 66

Fred G. Arnold

PCA APPOINTMENT—Fred G. Arnold has been named by Potash Company of America as sales representative for North Carolina, South Carolina and Virginia. He will make h's headquarters at 2022 St. Mary's St., Raleigh, N.C. Mr. Arnold is a native of Birmingham and a University of Alabama graduate. For the past 18 months he has been working out of the PCA general sales office.

National Joint Committee On Fertilizer Placement Meets at Purdue in August

LAFAYETTE, IND. — Program plans for the National Joint Committee on Fertilizer Application have been announced. This meeting, to be held in conjunction with the American Society of Agronomy, is set for Aug. 4, 1958, at Purdue University.

Presiding will be Dr. B. A. Krantz, University of California, Davis, vice chairman of the National Joint Committee on Fertilizer Application. Speakers scheduled to appear at the all-day session include the following: Werner L. Nelson, American Potash Institute, Lafayette, Ind.; A. J. Ohlrogge, Purdue; R. L. Cook, Michigan State University, East Lansing; George Enfield, USDA, Washington, D.C.; M. B. Tesar, Michigan State University; J. L. Parsons, Ohio Agricultural Experiment Station, Wooster; J. A. Jacobs, University of Illinois, Urbana, and Richard F. Dudley, USDA, Beltsville, Md.

Included on the program is a field trip to fertilizer placement demonstrations and exhibit of fertilizer placement machinery.

OHIO PLANT FIRE

SILICA, OHIO—A fire at the Rauh & Sons fertilizer plant here recently caused an estimated $4,000 in damage after an ammonium nitrate solution ignited.

Conservation Reserve Applications Total Four Million Acres

WASHINGTON—More than four million acres of cropland were offered for contracts under the 1958 conservation reserve of the Soil Bank through the close of this year's sign-up on April 15, according to preliminary reports received by the U.S. Department of Agriculture.

For carrying out soil and water conservation practices and wildlife habitat improvement measures on the land to be taken out of production under the contracts, farmers would earn up to 80% of the cost of establishing such practices. If they remain in compliance with the program, they will receive annual rental payments each of the years their contracts are in force. The acreage reported for the 1958 conservation reserve is in addition to about 6.5 million acres put in the program by 89,266 farmers during 1956 and 1957.

Under the conservation reserve, farmers sign contracts to divert general cropland from the production of crops to soil and water conservation uses, tree plantings and wildlife protection for periods of 3, 5, or 10 years.

Rains May Harm Kansas Wheat Crop

MANHATTAN, KANSAS—Continued rainfall may hurt wheat yields in eastern Kansas, says Elmer G. Heyne, agronomist at Kansas State College, Manhattan.

He explains that Kansas hard winter wheats are adapted to a maximum of 28 to 32 inches of rain. When moisture is in excess of about 35 inches there is exaggerated vegetative growth and decreasing yields. If the rains continue along with winds in eastern Kansas in June there may be considerable loss due to wheat that goes down.

Mr. Heyne says wheat prospects generally are better than at any time since 1952. The cool weather has limited leaf and stem rust infestation and other wheat diseases are uncommon except leaf blotch, which had a good start in most fields because of moisture and cool temperatures. This disease causes defoliation of leaves and may be beneficial in wet years like this since the amount of vegetative growth may be decreased.

American Chemical Paint Name Incorrectly Reported

An error appeared in a Croplife story on page 1 May 5 about a change in the corporate name for the American Chemical Paint Co., Ambler, Pa. The new name for the firm is Amchem Products, Inc. In its May 5 story Croplife incorrectly reported the new name as Agchem Products, Inc.

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What's Been Happening?

This column, a review of news reported in Croplife in recent weeks, is designed to keep retail dealers on the regional circulation plan up to date on industry happenings.

That an ample supply of pesticidal materials will be available for the current growing season was indicated by H. H. Shepard, USDA, in the annual "Pesticide Situation" report published in Croplife. Requirements for the year were estimated as follows for some of the widely-used pesticidal materials: DDT, 65 million lb.; Aldrin, chlordane, dieldrin, endrin, heptachlor, and toxaphene, combined, 45 million lb.; BHC, 8 million lb.; calcium arsenate, 15 million; copper sulfate, 30 million; 2,4-D (acid equivalent), 25 million; lead arsenate, 10 million; pyrethrum, 7 million; rotenone, 6 million; and 2,4,5-T, 2.5 million lb.

An infestation of desert locust, or band-winged grasshoppers, in Arizona was brought under control after a ten-day cooperative federal-state spraying effort over some 140,000 acres of desert land adjacent to irrigated crop lands. Several thousand acres of cotton and vegetable crops were damaged by the insects, but the control measures are credited with saving the major portion of crops.

Hugo Riemer, president of the Nitrogen Division, Allied Chemical Corp., New York, left his post after a career of 23 years with Allied. Mr. Riemer was a director and member of the executive committee of the National Plant Food Institute and prominent in the plant food industry.

Agricultural deliveries of potash were down 6% during the first three months of 1958, the American Potash Institute reported. Deliveries by the eight principal American producers totaled 929,326 tons of salts containing an equivalent of 544,204 tons K_2O.

The cotton industry, after a long period of disagreement, conceded that it must accept lower prices and expanded acreage if the industry as a whole is to avoid hard financial times. In May, the industry appeared to be ready to back legislation which would provide a basic cotton acreage allotment of 14 million acres from which a 30% excess of plantings would be permitted without penalty.

Pesticide exports during 1957 totaled more than 317.7 million pounds, worth more than $86 million, the U.S. Department of Commerce reported. These figures represented an increase of 8% in volume and 5% in value over the previous year.

American Cyanamid Co. announced that it would construct a new multi-million dollar maleic anhydride manufacturing plant at Bridgeville. Pa. The product of the plant is used in making agricultural chemicals and other products.

Scientists at the U.S. Department of Agriculture announced that chemically-chelated metals can be applied to soils to make them available to growing plants.

Shareholders of American Potash & Chemical Co. and of Lindsay Chemical Co. approved a merger of the two companies. Lindsay Chemical Co. will be operated as the Lindsay Chemical Division of American Potash.

A U.S. District judge in Utah found that Charles M. Miller, engineer formerly employed by Monsanto Chemical Co., St. Louis, had unlawfully revealed trade secrets to his subsequent employer, Central Farmers Fertilizer Co., a wholesale cooperative. Official injunctions are to be made on June 21 at Salt Lake City.

The U.S. Department of Agriculture said the water supply outlook for some western areas was the best in six to ten years . . . USDA also released results of tests indicating that herbicides in the granular form could extend the scope of chemical weed control . . . Naugatuck Chemical Division, U.S. Rubber Co., said that it would request the Food & Drug Administration to refer the new FDA proposal to establish a zero residue tolerance for the pesticide Aramite on food crops to an advisory committee of nationally-known scientists for decision.

Contracts were let to two chemical companies—Wasatch Chemical Co. and Sinclair Refining Co.—to supply pesticides to battle a bark beetle epidemic which is destroying trees on the Utah-Wyoming border.

The U.S. 1958 gypsy moth control program will include spraying of all known infestations, the U.S. Department of Agriculture announced.

The first commercial plant to produce Trithion, the new insecticide-miticide developed by the Stauffer Chemical Co., has been completed at Henderson, Nevada.

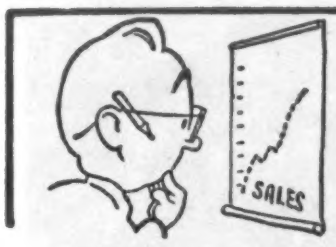
Nitrogen Division, Allied Chemical & Dye Corp., is installing two large-volume nitrogen solution storage terminals in Florida.

Two campaigns against the Great Basin tent caterpillar are to be launched in Colorado, New Mexico and Arizona by government insect experts. They plan to spray the caterpillars from planes with poison and a killer virus.

A strong emphasis on the economics of range fertilization featured the sixth annual California Fertilizer Conference held at San Luis Obispo. In one demonstration it was shown that heifers grazing on fertilized ranges gained far more weight than did the animals on the check plot.

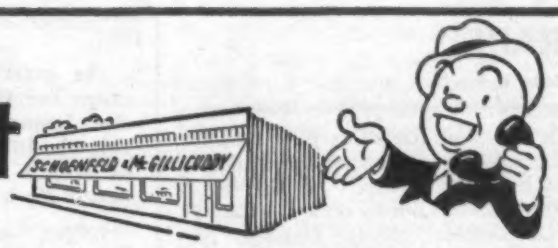
A survey of farm chemical dealers in West Texas and parts of New Mexico revealed that spring sales of fertilizer were down because of wet weather and lack of financing.

That poor application techniques are often responsible for adverse legislation against the use of herbicides, was the theme of an article by Thomas J. McMahon, of McMahon Bros. Co., Binghamton, N.Y. He said that in areas where herbicides were applied correctly, the results were looked upon with favor by the population.



Doing Business With

Oscar & Pat



By AL P. NELSON
Croplife Special Writer

Oscar Schoenfeld, the rotund, balding and pot bellied partner in the firm of Schoenfeld & McGillicuddy, farm supplies, put down his pencil and smiled. When Oscar, who was known as a cost cutter de luxe, smiled, it was a rarity, somewhat on the order of an unexpected 15% cut in federal income taxes.

But Oscar suddenly was happy, and it was a new experience to him, that warm flow of something exciting tingling through his body, because Oscar had just finished figuring up the day's discounts. By watching those 2% items he had this day made $44.84 on discounting $2,242—just like that, and he snapped his fingers hard.

Ann Hydrous, the Maltese cat sleeping on top a stack of Croplifes on the safe, opened one feline eye and then closed it again, as if to say "foolish mortals, why work so hard?"

At this moment, footsteps sounded. The door from the warehouse opened and in stepped Bob Burnham, a hatless, tall and bald fellow who sported a whitish mustache. In his arms he carried several guns. A dark haired, slender youth behind him carried a dummy hunter's figure.

Bob Burnham, the sporty sporting goods dealer, saw Oscar. "Hi, Oscar," he said. "Where's this window we're gonna decorate?"

"Window!" frowned Oscar. "We didn't order a window decorated. You've got the wrong place."

Bob Burnham shook his head. "Nope, this is it. Pat and I talked about it, and made a deal."

Displeasure and irritation began to seep through Oscar, destroying the delicious, warming feeling which had been there ever since he made the $44.84 through discounting bills.

"What kind of a deal?"

Bob Burnham walked toward the window and laid his guns on the floor. "Oh, some hunting idea that Pat has got. I'm to put in a hunting display in half the window and he has an idea for the other half."

Oscar got up from his chair and came striding forward. "We don't sell sporting goods!" he snapped.

"Of course, you don't, and it's a darn good thing you don't!" replied Burnham, still looking at the window. "Gee, this is a crummy window compared to mine. The wood needs painting on the sides, and the floor is warped. Why don't you fellows spend a little on fixing up your windows now and then? Good window space is worth one third of the rent."

Oscar's face got red. "We own our store," he said scornfully. "We don't rent it. We are on the spot cash basis. We don't live over our heads."

Something in his tone caused Burnham to look up. "Meanin' what? I rent my downtown store and I like it."

"When the shoe fits, ach, then a feller should wear it," Oscar said acidly.

Burnham flushed. "Listen, Oscar, I know what you are, and I wouldn't deal with you. I made the deal with Pat, but quit insulting me, or there will be trouble."

"I own half this business!" Oscar said importantly. "I have as much right to talk about what goes on as Pat does. More so. I could raise five times as much cash as he can."

"Mebbe," said Burnham, unrolling some green grass cloth. "But have you got as many friends as Pat, or even one fifth as many?"

Had Pat not come in at this moment, the argument might have gotten hotter. "Pat," called Burnham, "everything is not love and kisses here. Oscar objects. You forgot to ask his consent."

Pat grinned sheepishly. "Oh, Oscar and I have sort of divided the business duties. He handles the books and discounts, while I take care of sales promotions."

"But I watch the money spent on those sales, too," Oscar snapped. "And I don't like this hunting business. It sounds foolish to me."

"It is not foolish," Pat intoned. "It is a good, business building idea. Farmers likes to hunt. Even though this is spring, they'll soon do another kind of hunting. With farm chemicals and sprayers, they'll soon start hunting insects, Oscar. And we sell farm chemicals and sprayers."

"But why do we need the other guns here?"

Pat sighed. "The hunter holding a gun will sport a sign saying 'Time to Start Hunting Insects. Get Chemicals and Sprayers Here . . . Now . . . Don't Wait . . . Be Prepared . . .' Even though it's a little early, Oscar, we want the farmers to think of us on chemicals and sprayers, and think of us first. One part of this display will show some farm chemicals and some sprayers, too. There's the tie-up."

Oscar looked at Pat for a few seconds. Hostility flowed between the two. "Well," said Burnham, "do I do that window display, or do I pack up and go home?"

"How much are you charging us?" Oscar snapped.

"Nothing. All I get is a lousy sign in the window saying I furnished the hunting equipment. Now, I'm sorry I promised that."

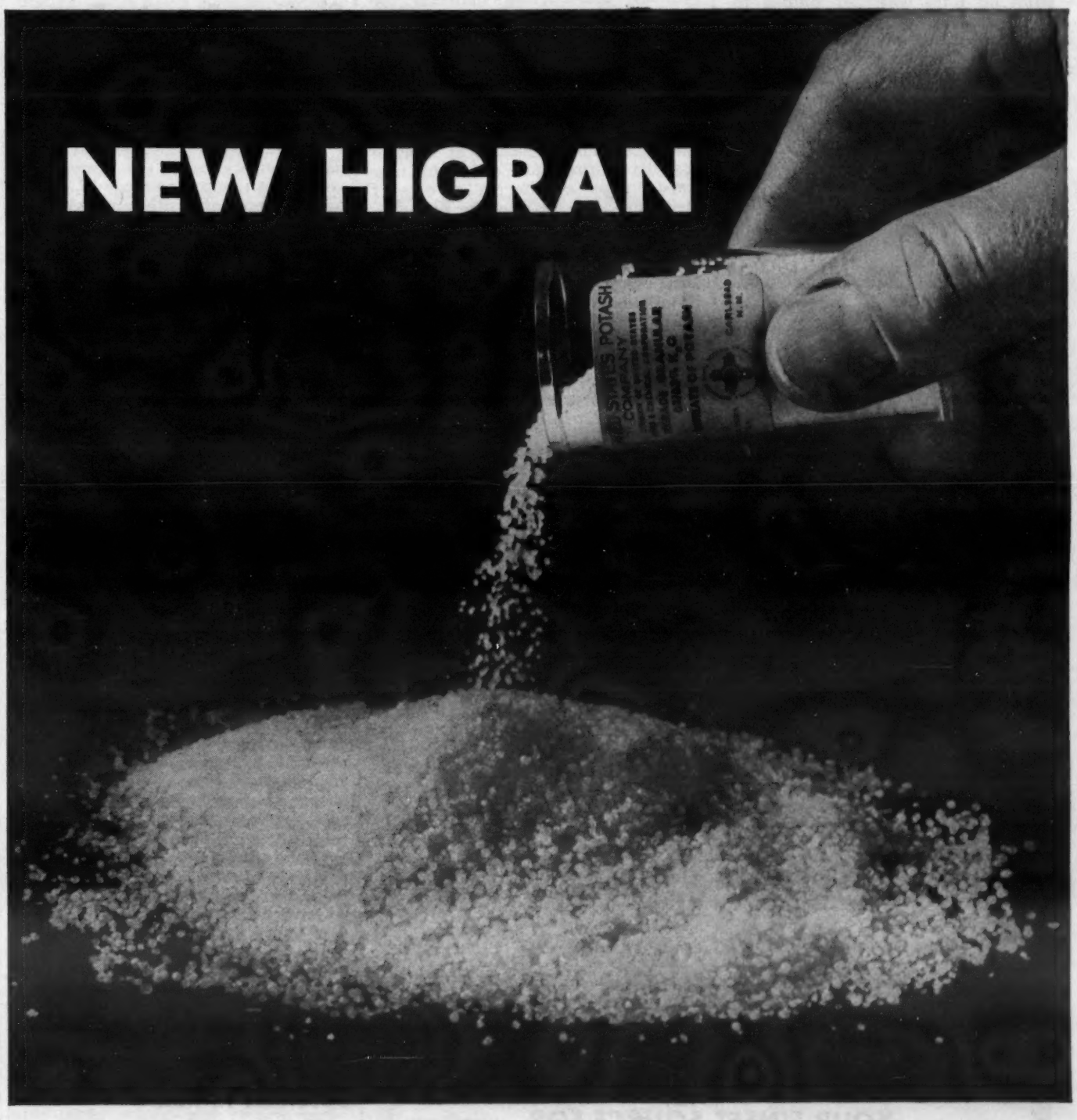
Oscar's lips were tight. "If there is no charge, then I have no objections now. Ach, but it all seems like a waste of time." Then, looking at Pat: "We'll need some collecting done today or tomorrow. Payday is coming soon." And he strode toward his desk.

"Whew!" said Burnham. "If I had a partner like that I'd punch him—right smack in the nose."

Pat sighed. "I have thought of that, begorra, but I can't."

"You can't. Why not?"

Pat looked a little sad. "Because, you see, I need him, and he needs me. That's the hell of it."



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STORED GRAIN

(Continued from page 1)

farm storage points up the need for attention on the part of farmers who produce small grains and hold them at farm storage levels to FDA sanitation requirements. This is particularly important because when final delivery to the Commodity Credit Corp. on loan defaults of farm stored commodities occurs at the country elevator, the grain infested with insects or contaminated with rodent excreta will be subject to discount as feed grain and cannot obtain a human food use price protection.

Too frequently government reports are seen as tiresome reading material, whereas they should be studied for their actual worth. They are often rich in sales material for the diligent digger for sales tools.

These reports could well be required reading for the sales desks of the pesticidal chemical industry. They point up total potential volume requirements for protective chemicals for small grains and they emphasize the type of potential demand as the reports disclose the exact nature of the farm storage facilities.

Here are some excerpts of the two reports of USDA mentioned:

An index of the sales potential for pesticidal chemicals may be found in these bulk estimates . . . in the states of Illinois, Minnesota, Missouri, North Dakota, South Dakota, Nebraska and Kansas, there is farm storage capacity for small grains of 2.5 billion bushels. Minnesota leads the parade of storage capacity at the farm level for small grains at approximately 468 million bushels; next is North Dakota with 410 million, and Kansas with 390 million.

Those three states account for about one-half of the small grain farm storage facilities in the areas named above.

The USDA bulletin, reporting the type of storage facilities at the farm level which would indicate the nature of requirement for protective chemicals. continues as follows:

"Farmers report wood as being the primary construction material for nearly three-fourths of the small grain capacity with metal comprising about one-fourth of the total capacity. Concrete and other types of material make up only about 2% of the total capacity. Producers in the 8-state area intend to add more than 100 million bushels of storage capacity during 1958 either by new construction or altering present structures. Of the storage capacity, about one-third was built prior to 1930, about 10% from 1930 to 1940, more than a fourth from 1940 to 1950, more than 10% between 1950-53 and nearly 15% from 1954 through 1957.

"Farm storage capacity suitable for storing ear corn is estimated at 1,125 million bushels for the 8-state area. This includes wire cribbing or snow fence considered by producers to be a usual facility for storing ear corn. Ear corn capacity of 458 million bushels in Illinois accounts for nearly 40% of the ear corn storage capacity in the 8 states.

"Storages constructed primarily of wood made up about three-fourths of the estimated ear corn storage capacity with steel bins representing about 10% of the total capacity. Most of the remaining capacity consisted of snow fence and wire cribbing."

In the other major report of USDA on grain storage conditions covering all types of storage the same intensity of demand for protective chemicals is set forth in bold capital letters.

Listen to the official USDA report of May 1958. It says in part—

"Carryover stocks this year of the six major grains and soybeans before the 1958 harvests may be a new record of about 3.3 billion bushels. This would be about 500 million bushels more than for these commodities in 1957.

"In addition to these carryovers, crops for 1958 will make substantial demands on storage capacity . . . the 1958 winter wheat crop as of May 1 indicated an outturn of better than a billion bushels.

"USDA estimates of storage requirements indicate that despite storage capacity increases in recent years, there will be an urgent need in many areas for more storage this year beginning with the small grain harvest in midsummer and continuing into the fall. The need will be particualrly acute in Nebraska, Iowa, Illinois, Kansas and Missouri. Local problems are likely to occur in virtually all grain producing states especially Minnesota, the Dakotas, Colorado, Oklahoma and Texas."

These government reports are sometimes dull themes. They are undecorated—without entertaining diversions or distractions, but they do contain the heavy pay dirt of sales potentials.

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Chemagro Promotes Three In Manufacturing Department

PITTSBURGH — Chemagro Corp. has announced the promotion of three men in the manufacturing department of its Kansas City plant.

Dr. James R. Costello has been named supervisor of the process development group. Lawrence W. Berglund has been appointed supervisor of the engineering group, and Robert A. Mohr has been named supervisor of the pilot plant.

Dr. Costello was formerly process chemist for Chemagro. In his new position, he will supervise the development and adaptation of manufacturing processes. Mr. Berglund's engineering group is responsible for supervision of construction of new installations and the design of equipment to be used in the company's manufacturing operations. He was formerly design engineer for Chemagro. Mr. Mohr, who was formerly process engineer with Chemagro, will be in charge of pilot plant operations of the company's manufacturing department.

Inorganic Chemical Output Dips in February

WASHINGTON—February production figures for inorganic chemicals showed a decline from the January output levels. Synthetic anhydrous ammonia production in February totaled 285,722 short tons, down from 326,730 short tons in January, while output of ammonium nitrate, original solution, amounted to 199,623 short tons, a decline from 235,731 in January, the Bureau of the Census reports.

Production of nitric, phosphoric and sulfuric acid also was down. Nitric totaled 209,121 short tons in February, compared with 247,989 in January; phosphoric totaled 135,140 short tons, down from 143,214; sulfuric totaled 1,214,072 short tons, down from 1,315,177.

Minnesota Weed Control Specialist to Retire

ST. PAUL—Ray S. Dunham, agronomy professor and weed control specialist at the University of Minnesota, will retire in June after 37 years on the university staff. He is a long time member of the North Central Weed Control Conference and has been secretary-treasurer and president of the organization. He was cited by the conference in 1956 for "outstanding work in weed control."

FRESNO FIRM

FRESNO, CAL.—Snowden & Macedo Dusters, Inc., has been organized in Fresno for applying seed and fertilizer. Directors of the firm are Raymond R. Snowden, Dos Palos; Joseph Macedo, Modesto, and Baxter K. Richardson, Fresno.

TREE FERTILIZATION—Dr. S. P. Gessel, associate professor of forestry, University of Washington, discusses tree fertilization with Todd Tremblay, Northwest representative of the National Plant Food Institute, sponsors of further studies in forest fertilization. The tree on the left received a good fertilizer program and has obviously prospered much more than has the one on the right which received none.

Tree Fertilization Subject of NPFI Grant In Washington State

PROSSER, WASH. — A recent grant of $2,000 by the National Plant Food Institute to the University of Washington is expected to benefit its present program of tree fertilization, according to Dr. Stan Gessel of the College of Forestry. The money will be used to develop specific information on the response of Douglas fir trees to fertilizer applications under field conditions.

"The idea of fertilizing trees to produce more wood per acre in a shorter period of time coincides with the modern day forestry management practices," Dr. Gessel said. Preliminary studies by Dr. Gessel and other members of the University staff have shown that fertilizers have a definite place in forest-land management. Tests indicate that nitrogen applications to Douglas fir trees have given an increase in height growth from two to three times in all height classes, with the largest trees showing the greatest responses. In several instances Dr. Gessel and his associates have shown that fertilization will accentuate natural competition on low-site areas and help the thinning process in overstocked stands.

Fertilizers may help to decrease the rotation age of a forest crop from 70 to 50 years, or grow the same volume per acre in 50 years rather than 70. This would mean less cost in land and all the investments associated with owning and operating large acreages of forest land, it is pointed out.

Dr. Gessel's preliminary experiments have indicated that there is a tremendous potential for fertilizers in the forest industry of the Douglas fir region. The exploratory work has been very favorable, but much more research is necessary to provide the basic information needed by the commercial companies and small woodlot owners before a full-scale fertilization program can be carried out.

AGRONOMIST NAMED

BATON ROUGE—The appointment of Billy J. Baker, Shreveport, as assistant agronomist in cotton on the state staff of the Louisiana State University Agricultural Extension Service, has been announced by H. C. Sanders, extension director. The post of extension agronomist in cotton was held by the late I. W. Carson for a number of years prior to his recent death.

USDA Plans Attack Against Virus Diseases of Clover

WASHINGTON — Successful control of virus diseases in Ladino and other clovers may require a 3-pronged attack involving resistant varieties, chemicals that quickly destroy or repel virus-carrying insects and systemically active compounds that inhibit the disease in plant tissues, according to the U.S. Department of Agriculture.

Researchers at USDA's Agricultural Research Center, Beltsville, Md., suspect that at least two of these virus diseases—alfalfa mosaic and bean yellow mosaic—known to reduce forage and seed yields of Ladino white clover by 25 to 50%, may also shorten the life of the clover plants. Field-plot studies are under way at Beltsville to determine the effects of these virus diseases on clover stand longevity.

Resistance to the virus diseases is being sought by Beltsville researchers E. A. Hollowell and K. W. Kreitlow of the Agricultural Research Service. Other measures, such as the use of chemicals to control virus-spreading insects or to inactivate the viruses within affected plants, are still in the exploratory stage. This 3-pronged attack, the USDA scientists say, will require much basic research and the cooperative effort of scientists in several different fields.

Search for virus-resistant plants has not been as fruitful as originally hoped. Some 11,000 Ladino clover seedlings have been tested so far, but none has been found resistant to either virus mosaic disease.

Both of the clover viruses occur in other legumes, and alfalfa mosaic virus occurs also in numerous weeds. Both viruses are carried to cultivated crops principally by aphids or other suckling or chewing insects. Dr. Kreitlow said he believes that commonly-used insecticides are not effective in controlling spread of the diseases because they do not always destroy the insects before they have infected the plant.

Development of a systemic chemical that would inhibit the viruses in clover plants is a future possibility. Two possible approaches are being considered. One is to find a compound that will inactivate the virus without harming the plant. The other is to find a material that will be taken up by the plant and enable it to produce substances from within to neutralize virus infections.

Monsanto Names New Director of Marketing

ST. LOUIS—Arthur P. Kroeger of St. Louis, associate director of marketing for the organic chemicals division of Monsanto Chemical Co., has been appointed director of marketing for the division effective June 1. Charles H. Sommer, Monsanto vice president and general manager of the division, made the announcement.

Mr. Kroeger succeeds John L. Hammer, Jr., of St. Louis who is resigning his position with Monsanto to accept appointment as assistant to the president of Mississippi Lime Co. of Alton, Ill.

New Kentucky Firm

ELKTON, KY.—Elkton Farm Supply here has been incorporated to manufacture and deal in fertilizers, feeds and farm supplies. Incorporators are Carrol Barnard of Elkton, W. J. Lear of Clifty and Brenton Gaver of Kirkmansville.

TO CLOSE LIME PLANT

BUFFALO, N.Y.—The National Gypsum Co. disclosed that it will soon shut down permanently its lime plant in Luckey, Ohio. National Gypsum operates another lime plant in Gibsonburg, Ohio, not far from Luckey.

WEATHER

(Continued from page 1)

many farmers and the soil bank sign-up.

Mr. Vandiver reported that many farmers who normally purchase fertilizer in truck lots have been cutting back on their orders this year. He said some increase has been noted in the purchase of higher analysis fertilizers such as 14-14-14 and 15-15-15 and predicted an upswing in the sales of straight materials in June as farmers side-dress their crops.

A. B. Beasley, Spencer Chemical Co., expects total fertilizer sales in the Mid-South to be down about 10 to 15% this year. Mr. Beasley reported a drop in the demand for nitrogen and blames this year's poor weather, last year's generally short crop and the fact that 28% of the cotton acreage is in the soil bank.

Mr. Beasley pointed out that the delay in planting this spring naturally slowed fertilizer sales and said that evidently many farmers are now so interested in getting the crop planted as soon as possible that they are skipping fertilizer application.

Dr. Robert Q. Parks, sales manager for Grace Chemical Co., said the company had looked for a better than average year but that sales were off.

However, frequent rains in February and March slowed land preparation, and heavy rains in April and May kept farmers out of the fields entirely, Dr. Parks said. Farmers are looking to getting cotton and corn in the fields, and if this happens, Grace is hoping for a boost in sales as a result of side-dressing in June.

The sales manager for Virginia-Carolina Chemical Corp., Terry Bradley, said he looks for sales in the Mid-South not to be above 75% of last year. The bad weather and soil bank were listed as major factors contributing to the drop. Farmers in the hill section of Mississippi are usually good prospects for V-C, but this year they have placed about 35% of their cotton acreage in the soil bank.

Mr. Bradley also is looking to side-dressing as a possibility for boosting sales, providing farmers can get crops in, he said. He also reported that some farmers were having difficulty financing their crops and this in turn affected fertilizer sales. Mr. Bradley commented that many farmers are concerned mainly with getting their crops into the ground rather than thinking about fertilization.

Weather also has affected sales of pre-emergence herbicides. Bob Harnden, agricultural sales manager for Chapman Chemical Co., distributors of "Karmex DL" in this area, said sales have shown about a 75% increase over last year. He feels, however, that sales would have doubled under good weather conditions.

★ ★ ★

Clear, Dry Weather Brightens Farm Outlook In Mid-South Area

MEMPHIS—The beginning of the third week in May saw thousands of acres of delta land in the Mid-South still under water, and reports indicated doubt that the land will be planted to cotton this year.

At the same time a week of clear dry weather changed the farm outlook in many areas from gloomy to bright. Extension officials in Arkansas, Mississippi, Missouri and Tennessee reported that farmers worked around the clock to get cotton, corn and soybeans planted.

Mississippi reported land preparation, planting and replanting as general for cotton. Corn planting is underway, along with the planting of soybeans, grain sorghum and sorghum for silage.

Farmers in the East Arkansas delta worked overtime to break land as it dried out and to replant cotton where necessary. Another week of hot dry weather would allow most of the planting to be done, officials said. Similar progress was being made with rice and soybeans.

A report from Missouri indicated some farmers are waiting to see how much cotton they get planted before deciding on soybean acreage. An extension service official said the West Tennessee farm picture grew brighter with the planting of "a lot of cotton and some corn."

FERTILIZERS

(Continued from page 1)

farmers are following the recommendations of their experiment stations and are not getting the most out of their acreages devoted to grasslands."

"It's not too late to fertilize pastures and hay lands now, to help build up feed reserves," he added. "Now, soil moisture is plentiful. Top-dressing Bermuda grass with at least 100 lb. of nitrogen per acre after each cutting is a good practice that will pay handsome dividends. Some farmers have found that it also pays to top seed their pasture with small grain. To get the most benefit out of grasslands, local agricultural authorities strongly recommend fertilizing in the spring and early fall, with a 500 lb. per acre phosphate-potash mixture and top-dressing in between with nitrogen at the rate of 100 lb. per acre, or a total of 400 lb. per acre of nitrogen for the season. Such a program maintains a high level of soil fertility, produces maximum quality feed and profit.

"In the Southeast pasture is cheaper than any other source of feed. Adequate fertilizer is important to maintaining this feed source so essential to the well-being of the southeastern livestock industry. To get quality hay and quality grazing at lowest cost, farmers can profitably turn to increased use of fertilizer in line with the needs of their soils and recommendations of their land-grant colleges."

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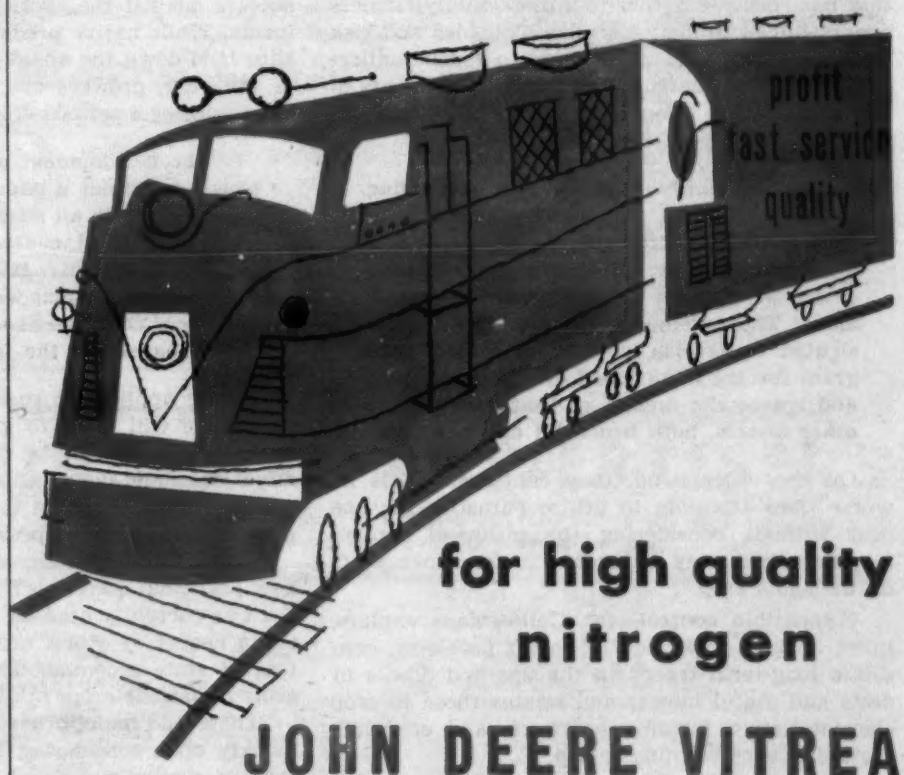

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USING BEST OF EACH . . .

Amalgamation of Chemical and Biological Pest Controls Proposed by Entomologists

WORKERS at the University of California have just come up with a suggestion which they say might be an answer to some of the more potent problems facing agriculture in the control of insect pests. They call the method "compatible control," stating that it includes the best features of both the chemical and biological methods.

The ability of insects to develop a certain amount of resistance to insecticides forms part of the problem; that of residue tolerances another part, and these, of course, are weighed against the grower's desire to protect his crop from the economic losses caused by pests. The ultimate answer has not yet appeared . . . whether more and more new pesticides must be employed against new types of infestation and against older bugs that have become harder to kill. Certainly farmers cannot afford to abandon all insecticides and risk their crops on an all-out attempt to depend entirely on biological controls. Too many experiments of this nature have been tried in the past with unimpressive results.

The compatible control idea, according to its proponents, Ray F. Smith and Kenneth S. Hagen, entomologists on the Berkeley campus of the University of California, offers a "common sense workable compromise." The entomologists say, "It is shortsighted to develop a chemical control program for the elimination of one insect pest and ignore the impact of that program on other insects, both beneficial and harmful."

On the other hand, they continue, "It is no worse than attempts to utilize parasites for one pest without considering the chemical control measures that may be necessary for other pests on the same crop."

Compatible control, the Californians explain, takes an area-wide view of insect problems, considers long-term trends in the ups and downs of pests and useful insects and relates these to crop characteristics, farming practices, and economic factors in each farming region.

According to Messrs. Smith and Hagen, three requirements are essential for the development of successful compatible control programs:

1. **Precise knowledge of insect populations must be available. Better sampling methods are being developed, some suitable for the farmer to use and others intended for the professional entomologist. Eventually, these entomologists hope it will be possible to forecast many pest outbreaks and plan advance strategy to resist them.**

2. A realistic "economic threshold"—that is, the lowest pest population level capable of causing economic damage—must be established for each pest insect on each major crop. In many cases, legal tolerances regarding insect levels and chemical residues on food crops will need adjustment in the light of a realistic appraisal of field conditions.

3. More and better selective insecticides, including microbial control products, should be developed to defend against harmful insects without killing off the beneficial ones.

Compatible control would reduce the need for some spray programs applied as "insurance" treatments. Instead, selective chemicals would be applied with precision when and where they are needed, while natural controls are allowed to perform a large share of the task.

Compatible control is already credited with success against the spotted alfalfa aphid in California. While native predators and imported parasites hold down the aphid populations during most of the year, growers are ready to apply insecticides whenever serious crop damage is threatened.

"The development of compatible control programs is not a panacea that can be applied blindly to all situations, for it will not work if natural controls are inadequate," Mr. Smith and Mr. Hagen point out. However, they add, it has worked so well in some situations that there seems to be a considerable promise for the future.

Before applauding such a program, the pesticide trade will want to know a great deal more about the plan . . . to determine how it would affect sales and distribution, and whether it might make the application of toxicants even more complex than it is at the present time.

Would "compatible control" call for additional new pesticidal materials? Would it alter formulations as currently used on various crops? Would it make necessary a new and more complicated system of state recommendations for control of insects in various crops?

These and many other questions come to mind quickly upon considering the ramifications of the type of control suggested by the California entomologists.

Still, the idea will intrigue many in the trade. On the surface the plan has some merit and will undoubtedly be the subject of experimentation on a larger scale than heretofore. How widely it may be adopted is a well-held secret for the future to decide.

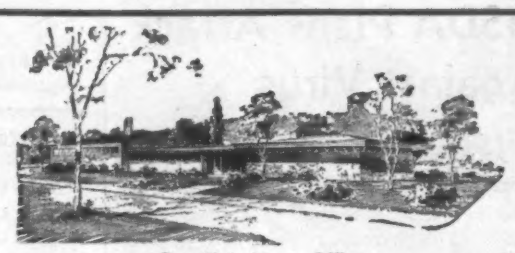
In the meantime, chemical controls for agricultural pests are doing an outstanding job in every state on countless crops. Despite the problems, headway is being made and if a greater degree of biological control might be coupled successfully with the current efforts, it may be all to the good.

Research Dependable Force In Agricultural Development

"Many challenges lie ahead along the new frontiers of agriculture. We are depending upon research to help meet them.

"Research offers us much as a way to expand agriculture's frontiers. It will contribute most if our support is adequate and our direction is wise. These are the reasons that the Department of Agriculture subscribes to a policy of broad and balanced research: Broad, because it is concerned with both the problems of the day and those of the future—problems that will yield most readily to a combination of basic and applied research. And balanced because solutions to major problems will come only when research concerns itself with the total job—the production, utilization, marketing, and consumption of farm commodities.

"We depend on research to provide the knowledge and tools to help our regulatory services handle the increasing workload and meet new problems as they arise."—Ezra Taft Benson, Secretary of Agriculture, in talk before annual convention of the Federal Plant Quarantine Inspectors' National Assn., Washington, D.C., May 3, 1958.



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MEETING MEMOS

June 16-17—Rural Development Program Conference, Peabody Hotel, Memphis, Tenn.

June 17-19—American Grassland Council's Annual Meeting, in conjunction with American Dairy Science Assn., Raleigh, N.C.

June 24—West Virginia University Agronomy Field Day, Reymann Memorial Farms, Wardensville, W.Va.

July 13-16—American Society of Agronomy, Northeast Branch, Cornell University, Ithaca, N.Y.

July 24—West Virginia University Agronomy Field Day, Ohio Valley Experiment Station, Point Pleasant, W.Va.

EDITOR'S NOTE: The listings above are appearing in the Meeting Memos for the first time this week.

June 4—Executive Committee, Fertilizer Safety Section, National Safety Council, Hotel Roanoke, Roanoke, Va. Time: 9 a.m.

June 5-6—Pacific Northwest Grain Dealers Assn., Annual Convention, Davenport Hotel, Spokane, Wash.

June 9-11—Association of Southern Feed & Fertilizer Control Officials, Heart of Atlanta Motel, Atlanta, Ga., Bruce Poundstone, University of Kentucky, Lexington, Ky., Secretary-Treasurer.

June 12-14—Manufacturing Chemists' Assn., 86th Annual Meeting, The Greenbrier, White Sulphur Springs, W.Va.

June 15-18—National Plant Food Institute, Annual Meeting, Greenbrier Hotel, White Sulphur Springs, W. Va.

June 16-19—Western Society of Soil Science, Logan, Utah.

June 18-19—Annual meeting, American Grassland Council, North Carolina State College, Raleigh.

June 25-27—Pacific Branch, Entomological Society of America, San Diego, Cal.

June 28—Del-Mar-Va Peninsula Fertilizer Assn., Annual Meeting, Ocean City, Md.

July 8-10—Pacific Northwest Plant Food Assn., Ninth Annual Regional Fertilizer Conference, Pocatello, Idaho.

July 11-12—Pacific Northwest Section, American Society of Range Management, Summer Meeting, Kamloops, B.C.

July 13-15—Plant Food Institute of Virginia and North Carolina, Summer meeting, Cavalier Hotel, Raleigh, N.C.

July 17-18—Southwest Fertilizer Conference and Grade Hearing, Buccaneer Hotel, Galveston, Texas.

July 29-30—Annual Fertilizer Industry Conference Sponsored by the Alabama Polytechnic Institute Experiment Station; Black Belt Substation near Marion Junction, Ala. (July 29) and Prattville, Ala. Experiment Field (July 30).

July 30—Kentucky Fertilizer Conference, Greenville, Ky.

Aug. 20-24—Canada Fertilizer Assn. (formerly Plant Food Producers of Eastern Canada), Annual Meeting, Manoir Richelieu, Murray Bay, Quebec.

Sept. 4—Grassland Field Day, Rutgers University Dairy Research Farm, Beemerville, N.J.

Oct. 14-15—Western Agricultural Chemicals Assn., Annual Meeting, Villa Hotel, San Mateo, Cal., C. O. Barnard, 2466 Kenwood Ave., San Jose 28, Cal., Executive Secretary.

Oct. 20—Annual Sales Clinic of Salesmen's Assn. of the American Chemical Industry, Inc., Roosevelt Hotel, New York.

Oct. 20-21—Fertilizer Section, National Safety Council, annual fall meeting, La Salle Hotel, Chicago, Ill.

Oct. 22-24—Pacific Northwest Plant Food Assn., Annual Meeting, Gearhart, Ore., Leon S. Jackson, P.O. Box 4623, Sellwood-Moreland Station, Portland, Ore., secretary.

Oct. 28-29—Northwest Garden Supply Trade Show, Masonic Temple, Portland, Ore.

Oct. 29-31—Fertilizer Industry Round Table, Sheraton Park Hotel, Washington, D.C.

Oct. 29-31—National Agricultural Chemicals Assn., 25th annual meeting, Bon Air Hotel, Augusta, Ga.

Nov. 9-11—California Fertilizer Assn., 35th Annual Convention, Ambassador Hotel, Los Angeles, Sidney H. Bierly, 475 Huntington Drive, San Marino 9, Cal., General Manager.

Nov. 18-20—Washington State Weed Conference, Moses Lake, Wash.

Nov. 24-25—Entomological Society of America, Eastern Branch, Annual Meeting, Lord Baltimore Hotel, Baltimore.

Dec. 1-4—Entomological Society of America, Annual Meeting, Hotel Utah, Salt Lake City.

Dec. 3-5—Agricultural Ammonia Institute, Annual Meeting, Morrison Hotel, Chicago, Jack F. Criswell, Claridge Hotel, Memphis, Executive Vice President.

Dec. 9-11—Chemical Specialties Manufacturers Assn., Annual Meeting, Commodore Hotel, New York.

Dec. 17-18—Beltwide Cotton Production Conference, Rice Hotel, Houston, Texas, sponsored by the National Cotton Council.

Jan. 20-22, 1959—California Weed Conference, Santa Barbara, Cal.

CALENDAR FOR 1958-59

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Vegetable Acreage Gains In High Plains Area

PLAINVIEW, TEXAS—In seeking a third cash crop to accompany cotton and grain sorghums, the High Plains farmers of Texas are putting in more than 50,000 acres of vegetables this year, or almost double the amount of last year.

The acreage has increased more than eight times since 1949, according to Joe Cole, district horticulturalist with the Texas Extension Service. At the same time the crop value jumped from a half million dollars to more than six million.

Some farmers have made tremendous profit with vegetables, while others lost money. It is a highly hazardous crop, says Mr. Cole, because of uncertain markets. Since there are no government supports, a surplus can drive prices down below the break-even price. To offset this risk, many farmers have formed associations and try to find a market even before planting.

Production costs in this area are high, ranging from $53 an acre for cantaloupes up to $200 for onions. The main vegetables besides these two are potatoes, cucumbers, beans, peas, okra, pepper and watermelons.

One wholesome aspect about the growing vegetable acreage is the over-all prosperity it brings to the area. The crops require large numbers of workers; they must be planted and tilled with special equipment and they also require ample fertilizer and insecticides. These needs have stimulated business wherever the vegetable centers are located.

Fidelity Chemical Quits Fertilizer Business

HOUSTON—Fidelity Chemical Corp. here has sold the rights to its product, Ferti-Loam, and has quit the fertilizer and cottonseed oil processing business. The Ferti-Loam name has been purchased by the Hi-Yield Fertilizer Co., Bonham, Texas. Herbert D. Smith, Hi-Yield president, said that Ferti-Loam is being distributed in Texas, New Mexico, Oklahoma, Arkansas and Louisiana and that other states would be added in the future.

Classified Ads

Classified advertisements accepted until Tuesday each week for the issue of the following Monday.

Rates: 15¢ per word; minimum charge $2.25. Situations wanted, 10¢ a word; $1.50 minimum. Count six words of signature, whether for direct reply or keyed care this office. If advertisement is keyed, care of this office, 20¢ per insertion additional charged for forwarding replies. Commercial advertising not accepted in classified advertising department. Display advertising accepted for insertion at minimum rate of $11 per column inch.

All Want Ads cash with order.

HELP WANTED

SALES REPRESENTATIVE FOR NITROgen producer. Excellent opportunity. Agricultural education. Age 25 to 40. Location Iowa, Missouri. Three to five years' experience selling to fertilizer manufacturers. Salary based on experience. Address Ad No. 2786, Croplife, Minneapolis 40, Minn.

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American Potash Institute .....
Anco Manufacturing & Supply Co. .....
Armour Fertilizer Works .....
Ashcraft-Wilkinson Co. 12

Baughman Manufacturing Co., Inc. .....
Bemis Bro. Bag Co. .....
Blue, John, Co. .....
Bradley & Baker .....
Broyhill Company, The 18
Burgess Publishing Co. .....

Chase Bag Co. 23
Chemagro Corp. .....
Chemical Eng. Serv. Div. of Manitowoc Shipbuilding, Inc. .....
Chemical Insecticide Corp. .....
Clover Chemical Co. .....
College Science Publishers .....
Collier Carbon & Chemical Corp. .....
Commercial Solvents Corp. 5
Consolidated Mining & Smelting Co. ....
Crown Zellerbach Corp. .....

Dallas Tank Mfg. Co. .....
Davison Chemical Co. .....
Deere, John, & Co. 21
Dempster Mill & Mfg. Co. 4
Diamond Alkali Co. .....
Dow Chemical Co. 7
E. I. du Pont de Nemours & Co., Inc.....
Duval Sulphur & Potash Co. 12

Eastern States Petroleum & Chem. Corp...
Emulsol Chemical Corp. .....
Escambia Chemical Corporation .....

Food Machinery & Chemical Corp. .....
Flexo Products, Inc. .....

Gates Rubber Co. 14
Grace Chemical Co. 13
Grand River Chemical Div. of Deere & Co. 21

Harshaw Chemical Co. .....
Henderson Mfg. Co. .....
Hercules Powder Co. 24
Highway Equipment Co. .....
Hough, Frank G., Co. .....

International Minerals & Chemical Corp...

Johns-Manville Corp. .....
Jones, Robin, Phosphate Co. 20

Kalo Inoculant Co. .....
Kent, Percy, Bag Co. .....
Kraft Bag Corp. .....

Maas, A. R., Chemical Co. .....
Merck & Co. .....
Meredith Publishing Co. 2
Meyer, Wilson & Geo., & Co. .....
Miller Chem. & Fert. Corp. .....
Monsanto Chemical Co. 15

National Distillers & Chemical Corp. ....
National Potash Co. .....
Naugatuck Chemical Div., U. S. Rubber Co.
Niagara Chemical Division .....
Northwest Nitro-Chemicals, Ltd. .....

Olin Mathieson Chemical Corp. .....

Pacific Coast Borax Co. .....
Penick, S. B., & Co. .....
Pennsalt of Washington Div. of Pennsalt Chemical Corp. 8
Phillips Chemical Co., a subsidiary of Phillips Petroleum Co. 17
Potash Company of America 3

Raymond Bag Co. .....

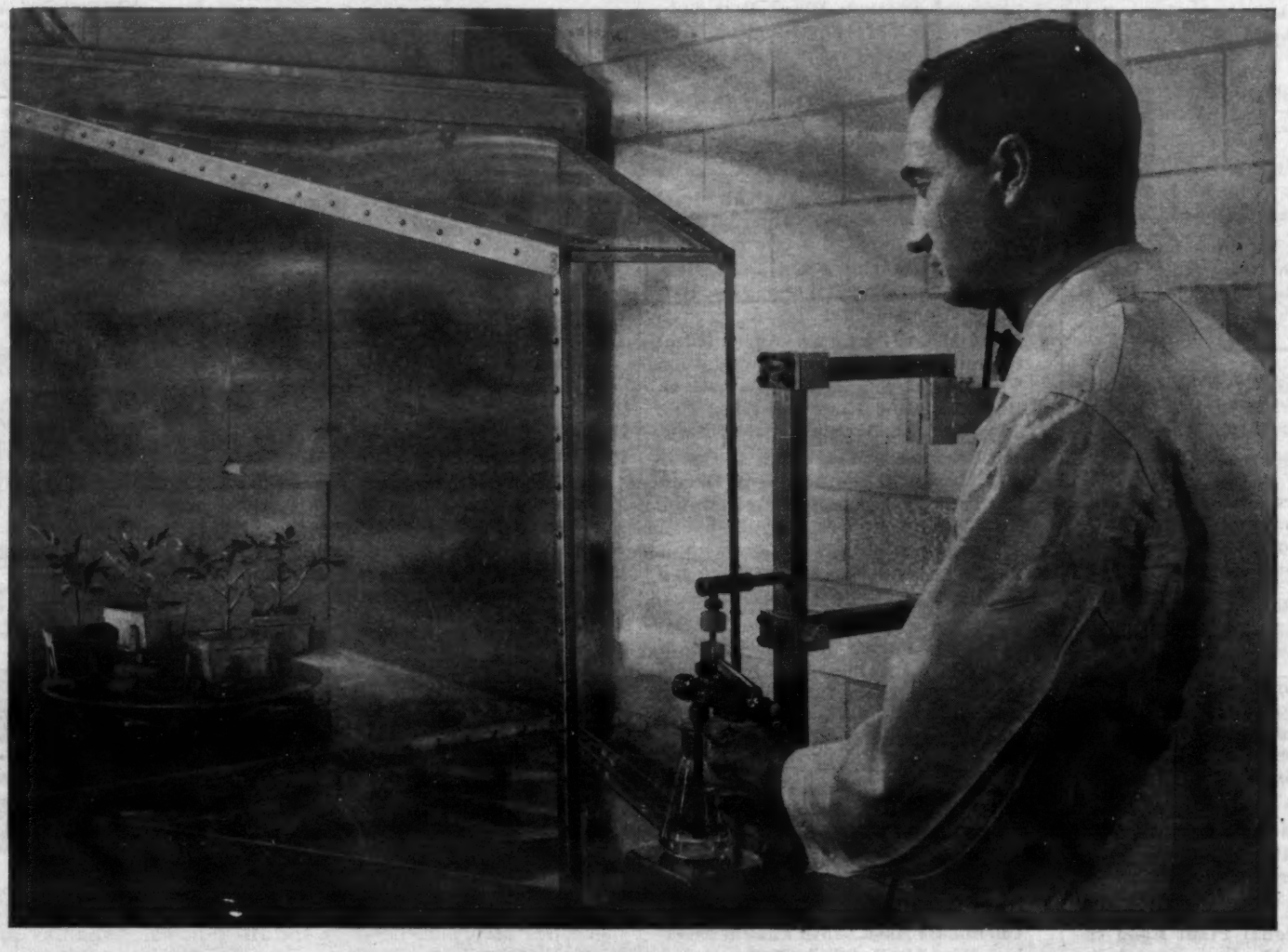
Shattuck, S. W., Chemical Co. .....
Shell Chemical Corp. .....
Simonsen Mfg. Co. .....
Sinclair Chemicals, Inc. .....
Smith-Douglass Co., Inc. 11
Smith-Rowland Co., Inc. 11
Sohio Chemical Co. 6
Southern Nitrogen Co. .....
Spencer Chemical Co. .....
Spraying Systems Co. 20
Standard Oil Co. .....
Stepan Chemical Co. .....
Stewart-Warner Corp. .....
Suamico Eng. Corp. .....
Successful Farming 2

Tennessee Corp. .....
Tiura Mfg. & Sales Co. .....

Union Bag-Camp Paper Corp. .....
U. S. Borax & Chem. Corp. .....
U. S. Industrial Chemicals Co. .....
U. S. Phosphoric Products Division .....
U. S. Potash Co. 19
U. S. Rubber Co., Naugatuck Chem. Div.
U. S. Steel Corp. .....

Velsicol Chemical Corp. .....

Western Phosphates, Inc. .....



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From the Hercules Research Center and Agricultural Chemicals Laboratories come an ever increasing number of products that contribute to more productive farming and increased comfort for leisure hours. Here are the established members of the Hercules family: *Toxaphene agricultural insecticide; Thanite® for oil base and aerosol insecticides; Delnav* phosphate pesticide; meta Delphene® insect repellent; Delrad® algicide.*

Today in the laboratories research continues on the products that will join them in the future. But before they become available you can be sure that thousands of compounds have been carefully screened and extensive tests conducted in the field because only the best is good enough to meet the standards of Hercules research. That's why you can look to Hercules for leadership in the development of insecticides, fungicides, and herbicides.

Agricultural Chemicals Division, Naval Stores Department

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